Supreme Court, U.S.
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No. 95-

IN THE
Supreme Court of the United States
OCTOBER TERM, 1995

BP CHEMICALS LIMITED and
STERLING CHEMICALS, INC.,
Petitioners,

v.

HOECHST CELANESE CORPORATION,
Respondent.

Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

PETITION FOR WRIT OF CERTIORARI

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QUESTIONS PRESENTED

1. Whether a court interpreting a technical term in a patent claim departs from the fair notice function of 35 U.S.C. § 112—which requires that a patent contain one or more claims that particularly point out and distinctly claim the invention—when it relies on extrinsic evidence, such as self-serving inventor testimony, that was not available to members of the public attempting in good faith to construe the patent.

2. Whether, as the Court must decide in *Warner-Jenkinson Co.* v. *Hilton Davis Chemical Co.*, No. 95-728, the doctrine of equivalents remains a viable legal doctrine under the Patent Act of 1952 and, if so, whether the proper legal standards for application of the doctrine were employed in this case.

LIST OF PARTIES

The only parties to this proceeding are the petitioners, BP Chemicals Limited and Sterling Chemicals, Inc., and the respondent, Hoechst Celanese Corporation.

RULE 29.6 LIST

Pursuant to Rule 29.6 of the Rules of this Court, petitioners state the following:

Petitioner BP Chemicals Limited states that its parent company is The British Petroleum Company p.l.c., and that it has the following nonwholly owned subsidiaries:

BP America Inc.
BP Capital BV (Netherlands)
BP Capital plc
BP Developments Australia Limited (US)
BP Exploration (Alaska) Inc.
BP Finance Australia Limited
BP Finance Australia (CP) Limited
BP France
BP Oil Espana SA
BP Oil New Zealand Limited
BP Overzee BV (Netherlands)
BP Pipelines (Alaska) Inc.
BP Portuguesa SA
Corporation Iberica de Nutricion SA (CINSA)
Service Station Holdings Inc. (US)
The Standard Oil Company (US)

Petitioner Sterling Chemicals, Inc. states that it does not have any parent companies or nonwholly owned subsidiaries.

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PETITION FOR WRIT OF CERTIORARI

Petitioners BP Chemicals Limited and Sterling Chemicals, Inc. respectfully petition for a writ of certiorari to review the judgment of the United States Court of Appeals for the Federal Circuit.

OPINIONS BELOW

The opinion of the court of appeals (Pet. App. 1a-17a) is reported at 78 F.3d 1575 (Fed. Cir. 1996). The opinion of the district court (Pet. App. 18a-33a) is reported at 846 F. Supp. 542 (S.D. Tex. 1994).

JURISDICTION

The United States Court of Appeals for the Federal Circuit rendered its judgment and opinion on March 19,

1996. This Court has jurisdiction under 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

35 U.S.C. § 112 provides in pertinent part:

> The [patent] specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

STATEMENT OF THE CASE

This is a patent infringement action alleging that petitioners infringed respondent's patent concerning a method for removing iodide compounds from organic media, such as acetic acid. The United States District Court for the Southern District of Texas had jurisdiction pursuant to 28 U.S.C. §§ 1338(a) and 2201.

1. Petitioners (collectively, "BP") produce acetic acid for commercial sale. In 1990, BP experienced an iodide contamination problem in its manufacturing process. When iodide is present in acetic acid even at very dilute concentrations, it can drastically and adversely affect certain chemical reactions in which acetic acid is commercially used. In particular, when acetic acid is catalytically converted to vinyl acetate, the presence of iodide in trace amounts can deactivate or "poison" the vinyl acetate catalyst. Pet. App. 2a. This can necessitate replacement of the catalyst, which is very costly.

To address the contamination problem, BP formed a task force in 1990 to develop an iodide removal method that would satisfy three objectives: (1) effectively remove low levels of iodide from acetic acid; (2) work on a commercial scale; and (3) not infringe any existing patents. After considering a number of ideas, including chemical treatments, gas treatments, and the use of ion exchange resins, the task force recommended a method

in which the contaminated acetic acid is passed through a bed of Purolite C-145 ion exchange resin beads that have been loaded with silver. A chemical reaction occurs between the silver in the resin beads and the iodide impurity, binding the iodide to the resin and thereby eliminating it from the acetic acid.

In recommending the Purolite resin process, the task force concluded that it did not infringe any existing patents, including respondent's United States Patent No. 4,615,806 ("the '806 patent"). The '806 patent claims protection for

> a method for removing iodide compounds from a non-aqueous organic medium comprising contacting the medium containing said iodide compounds with an ion exchange resin characterized in that the resin is a macroreticulated strong-acid cation exchange resin which is *stable* in the organic medium and has at least one percent of its active sites converted to the silver or mercury form.

Pet. App. 3a (emphasis added). The term "stable" is not defined in any of the patent claims, but is defined in the patent specification as meaning

> that the resin will not chemically decompose, or change more than about 50 percent of its dry physical *dimension* upon being exposed to the organic medium containing the iodide compounds.

Pet. App. 5a (emphasis added). Even though the meaning of the term "stable" turns on the meaning of the term "dimension," the latter term is not defined anywhere in the patent. The patent states that the preferred resin for the process is a commercially available product sold under the trade name "Amberlyst 15." Pet. App. 19a.

BP concluded that the use of Purolite C-145 did not infringe the '806 patent because it was not a "stable" resin, as that term is used in the patent. According to the patent specification, which BP carefully examined and

relied on, a "stable" resin is one that expands less than 50% in "dimension" from the dry state when exposed to acetic acid. Although the term "dimension" is not defined anywhere in the patent, BP reasonably understood "dimension" to mean "volume" because there are other references to volume change measurements in the patent [1] and the practice in the chemical industry is to measure volume changes in resins upon exposure to a solvent. In addition, volume expansion is one of the key parameters for designing a resin vessel that will not explode. BP therefore concluded that Purolite C-145 was an "unstable" resin because it expanded more than 50% in volume when exposed to acetic acid. In order to confirm that its method did not infringe respondent's patent, BP performed tests which proved that C-145 swelled over 100 percent, double the 50 percent expansion maximum specified for respondent's method. In April 1992, BP began using the Purolite process in the United States.

In January 1993, much to BP's surprise, respondent sued it for infringing the '806 patent. BP was confident that it had not infringed the patent, and sent respondent a sample of the Purolite C-145 resin, together with a test protocol and the actual results of a test establishing that it swelled more than 100%. BP believed that the sample and test results demonstrated conclusively that the Purolite C-145 resin was not "stable" within the meaning of

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[1] The patent contains several references to the volumes of particular resins, and to changes in volume when resins are exposed to a solvent. For instance, all of the examples in the patent begin with a description of the volume of the resin under investigation. In addition, the patent specification contains a table copied from the Amberlyst 15 manufacturer's technical bulletin that reports the *volume* expansion of the resin from the dry state when it is saturated with a range of solvents. Pet. App. 9a. This same technical bulletin, which was submitted to the Patent and Trademark Office and was readily available to the public, contains a cautionary note about the expansion of Amberlyst 15 because the resin columns can shatter or explode if they are designed without taking the swelling into account.

the patent, and therefore, that BP's iodide-removal process did not infringe. Respondent, however, adhered to its view that BP was infringing its patent. It explained that the intent of the inventor—an intent that is not expressed anywhere in the patent—was for the term "dimension" to refer to a linear measurement, such as diameter or radius, rather than to volume. Under this interpretation, Purolite C-145 was a stable resin because it expanded less than 50% in *diameter* when exposed to acetic acid, and BP's process therefore infringed respondent's patent.[2]

Respondent's infringement suit was tried to a jury in January 1994. The jury was instructed both on literal infringement and on infringement under the doctrine of equivalents. Although the parties had agreed that claim interpretation is a question of law for the court, the court refused BP's request to instruct the jury on the proper interpretation of the term "stable" in the patent.[3] After a seven-day trial, the jury returned a verdict finding that BP had infringed the '806 patent, and that the infringement was willful. The verdict did not identify whether the jury had found literal infringement or infringement under the doctrine of equivalents. The jury awarded respondent a royalty of 0.6 cents per pound for each pound of acetic acid that BP had treated.

2. During trial, the district court denied BP's motion for judgment as a matter of law. Thereafter, in its findings of fact and conclusions of law, the court conceded

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[2] The volume of a spherical object is related to the object's radius by the formula: $V = 4/3\pi r^3$. Thus, a small percentage change in radius or diameter results in a much larger percentage change in volume. For example, a 50 percent increase in diameter results in a volume increase of 337 percent.

[3] BP's position at trial was that the meaning of the terms "stable" and "dimension" in the patent are clear because the patent indicates unambiguously that "dimension" refers to volume. Because of this belief, BP stipulated in the pretrial order that the provisions of section 112 were satisfied. The terms are ambiguous only when construed in the light of extrinsic evidence that BP considers improper and irrelevant.

that the definition of "stable" in the '806 patent presented a "close[]" question, Pet. App. 21a, but nevertheless concluded that "substantial evidence supports a conclusion that Purolite C-145 is 'stable' within the literal meaning of the '806 patent." Pet. App. 22a. Alternatively, the district court concluded that the jury permissibly could have found infringement under the doctrine of equivalents. *Id.* Finally, the district court made its own finding of infringement under the doctrine of equivalents, noting that the *en banc* Federal Circuit was at that time considering the question whether the doctrine of equivalents is properly an issue for the jury or for the court. Pet. App. 23a. See *Hilton Davis Chem. Co.* v. *Warner-Jenkinson Co.*, 62 F.3d 1512 (Fed. Cir. 1995) (en banc), *cert. granted*, 116 S. Ct. 1014 (Feb. 26, 1996).

3. The Federal Circuit affirmed. Consistent with its recent decision in *Markman* v. *Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (en banc), which itself has since been affirmed by this Court, 116 S. Ct. 1384 (1996), the Federal Circuit stated that it had to decide *de novo* the disputed issues of claim interpretation relating to the terms "stable" and "dimension," without deference to the jury. Pet. App. 3a-4a. The court noted that the evidence was "sharply in conflict" as to the meaning of those critical terms. Pet. App. 6a. It found that the parties' technical experts gave conflicting testimony as to the accepted meaning of the terms to those experienced in the field of the invention, Pet. App. 6a-7a, and that the parties' proffered dictionary definitions failed to "distinguish in a dispositive manner between the contested technical meanings," Pet. App. 7a. The court also reviewed other information in the patent specification that it characterized as referring either to volume measurements or linear measurements,[4] but did not reach any

[4] Some of the Federal Circuit's characterizations of references in the patent were unsupported by the trial record. For example, the court cited a portion of the patent specification that "shows the resin characteristic of mesh size of the dry resin, a linear

conclusion as to the significance of these references for the interpretation of the terms in the patent. Pet. App. 9a.

The Federal Circuit then turned to the testimony of the inventor, Dr. Hilton, who is employed by respondent and who testified that he meant "dimension" to refer to a linear measurement, *i.e.*, the radius of an individual resin bead. The Federal Circuit's decision includes lengthy quotations from Dr. Hilton's testimony, both on direct and cross-examination. Pet. App. 7a-8a. It noted that the district court had found Dr. Hilton's testimony to be "highly credible," and that his testimony read like that of an "expert in the field." Pet. App. 8a. While acknowledging that it was required under its decision in *Markman* to give "no deference" to the testimony of an inventor as to the meaning of the patent claims, the court noted that Dr. Hilton's testimony "enlarg[ed] our understanding of the technology and the usage of the disputed terms." Pet. App. 9a.

Finally, the Federal Circuit noted that the district court had observed that tests proffered by BP at trial appeared to indicate that the resin specified in the patent as the preferred embodiment of the invention—the Amberlyst 15 resin—expands slightly more than 50% in volume when placed in acetic acid. *Id.* The Federal Circuit concluded, contrary to the inventor's testimony, that under BP's interpretation of the patent, this preferred embodiment would be *excluded* from the patent. The court deemed it "unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way." *Id.* This was despite

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measure based on diameter." Pet. App. 9a. No witness at trial, however, including respondent's experts, testified that the mesh size for dry resins has any bearing on whether a dry resin's expansion upon contact with a liquid is measured by volume or diameter. Thus, the Federal Circuit's reliance on the mesh size reference has no support in the record.

the fact that the inventor's largest measurement showed a volume increase of 37%, which was well within BP's 50% interpretation. Accordingly, the Federal Circuit accepted respondent's interpretation of the term "stable," and concluded that there was literal infringement based on that interpretation. Pet. App. 10a.

The Federal Circuit declined to address BP's argument that because respondent did not present sufficient evidence of equivalents, the issue of equivalents should not have been submitted to the jury. The court noted that BP had not clearly preserved this issue in its directed verdict motion, and that the court's finding of literal infringement was sufficient to sustain the jury's general verdict of infringement. Pet. App. 10a-13a.

REASONS FOR GRANTING THE PETITION

This case raises questions of fundamental importance to patent law and patent litigation. The first question presented asks what types of extrinsic evidence courts may rely on in interpreting patent claims. This is of almost universal importance in patent litigation because claim interpretation is a central issue in nearly every patent infringement suit. This question also raises fundamental issues concerning the patentholder's duty to give the world clear notice of the subject matter which the patent monopolizes. Under the approach adopted by the Federal Circuit in this case, patentholders need not draft clearly worded patent claims because they will get the benefit in litigation of *post hoc* inventor testimony regarding the inventor's subjective intent concerning the scope of the claims. This departure from the strict notice principles of patent law inevitably will create great uncertainty for third parties seeking to determine the scope of existing patents. The second question presented—concerning the proof needed to establish infringement under the doctrine of equivalents—likewise implicates the notice principles underlying the patent law. It raises the issue of whether and to what extent patent protection should be extended

beyond the literal scope of the claims drafted by the patentee.

While both questions are worthy of this Court's attention, this petition should not be considered without regard to the Court's recent decision in *Markman*, and its grant of certiorari in *Hilton Davis*. The Court's actions in *Markman* and *Hilton Davis* place a renewed emphasis on the importance of certainty and predictability in the patent system. In *Markman*, this Court emphasized the critical role of certainty by holding that claim interpretation is a question of law that must be decided by the court, rather than a question for the jury. The question to be resolved in *Hilton Davis* is whether patent protection extends beyond the boundaries defined by the patent claims. The first question presented in this case is the logical next step in resolving the issues raised in *Markman* and *Hilton Davis* because it addresses another aspect of the notice/certainty problem: whether in interpreting the meaning of patent claims courts may consider information that was not available to the general public prior to litigation. This case is thus a fitting continuation to *Markman* and *Hilton Davis* because the manner in which courts interpret patent claims always will affect how patents are drafted and how they are read by the public.

Indeed, the claim interpretation issue is arguably *more* important to the predictability of the patent system than either of the questions presented in *Markman* or *Hilton Davis*. The judge/jury issue resolved in *Markman* was a procedural question that will not necessarily affect substantive outcomes in a systematic way. Moreover, this procedural issue was of recent origin because only recently did juries begin routinely to decide claim interpretation issues. Claim interpretation, however, has always been at the heart of infringement cases. Indeed, claim construction is critical to resolving claims of infringement both under the theory of literal infringement and under the doctrine of equivalents. The doctrine of equivalents requires a comparison between the accused

device and the patent claims, as they are construed by the court. Thus, whether or not the doctrine of equivalents survives *Hilton Davis*—and particularly if it does —claim construction issues will loom large in most infringement suits, and determine the results in many. Thus, inconsistent standards and methods for claim construction will undermine the certainty of the patent system by giving rise to inconsistent and unpredictable results in infringement cases.

Because this case presents a logical, and critical, third stage in this Court's examination of basic issues relating to certainty in the patent system, the Court should grant the petition. Alternatively, the Court should hold this petition, pending its decision in *Hilton Davis*. The issues raised by the first question presented in the petition inevitably will be affected by the Court's analysis of notice principles in *Hilton Davis* as they bear on the question whether patent protection should extend beyond the literal terms of patents. The issues raised by the second question presented plainly overlap one of the primary issues in *Hilton Davis*, *i.e.*, whether the doctrine of equivalents survived in the Patent Act of 1952. Accordingly, the Court, at a minimum, should hold the petition until *Hilton Davis* is decided, and then either grant the petition, or remand the case to the Federal Circuit in light of the *Hilton Davis* decision.

I. THE FEDERAL CIRCUIT'S USE OF EXTRINSIC EVIDENCE THAT WAS NOT AVAILABLE TO PETITIONERS IN INTERPRETING A PATENT CLAIM PRESENTS AN IMPORTANT QUESTION OF PATENT LAW, AND IS FLAWED ON THE MERITS.

The Federal Circuit's decision in this case has widespread implications for patent litigation, and for the inventive process that is inevitably affected by litigation outcomes. The methods by which courts interpret patent claims are of critical importance to the field of patent law and to the general public. Claim interpretation de-

termines the practical scope of patent protection. Indeed, there is no substantive difference between expanding patents through impermissibly broad claim constructions, and expanding them through the doctrine of equivalents. In short, the process by which courts interpret patent claims affects how patent claims are drafted, how patent suits are litigated and, in the aggregate, the outcomes of infringement suits. See *Markman*, 52 F.3d at 989 (Mayer, J., concurring) ("[T]o decide what the claims mean is nearly always to decide the case").

1. What makes the Federal Circuit's holding in this case particularly important is that the decision signals a reversal of that court's position concerning the appropriateness of considering evidence of the inventor's subjective intent during the claim interpretation process. In this case, the court turned its back on its precedent by relying on the testimony of the inventor as to his intent in describing his invention where all of the objective evidence—testimony from technical experts in the field, dictionary definitions, and the language of the patent specification—was found to be inconclusive.[5] The objec-

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[5] *See, e.g., Markman* v. *Westview Instruments, Inc.*, 52 F.3d 967, 983 (Fed. Cir. 1995) (en banc), *aff'd*, 116 S. Ct. 1384 (1996); *North Am. Vaccine, Inc.* v. *American Cyanamid Co.*, 7 F.3d 1571, 1577 (Fed. Cir. 1993) ("after-the-fact" testimony of inventor as to what he "intended" to include in the patent is entitled to "little weight"), *cert. denied*, 114 S. Ct. 1645 (1994); *Intellicall, Inc.* v. *Phonometrics, Inc.*, 952 F.2d 1384, 1388 (Fed. Cir. 1992) (district court properly ignored testimony of inventor as to the "secretly held intended meaning" of patent); *Senmed, Inc.* v. *Richard-Allan Medical Indus., Inc.*, 888 F.2d 815, 819 & n.8 (Fed. Cir. 1989) (rejecting inventor's "self-serving, *post-hoc* opinion testimony" as to the meaning of patent terms); *Lear Siegler, Inc.* v. *Aeroquip Corp.*, 733 F.2d 881, 888-89 (Fed. Cir. 1984) ("litigation-induced pronouncements" of inventor have no effect on court's analysis of patent terms).

While the Federal Circuit in this case stated the rule from *Markman* that it could give "no deference" to the testimony of the inventor about the meaning of the claims, Pet. App. 9a, the result in this case makes plain that it did not adhere to that

tive, publicly available sources for discerning the meaning of respondent's patent were fully consistent with petitioners' construction and determination that there was no infringement. Only by turning to subjective evidence was it possible to arrive at a claim construction that exposed petitioners to a risk of infringement.[6]

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approach. Because the other objective evidence—the patent documents, dictionary definitions, and expert testimony—was inconclusive, the inventor's testimony was not "cumulative," as the court asserted, but instead was dispositive. *Id.* Indeed, the court's reliance on the inventor's testimony was particularly egregious because under all of the traditional types of extrinsic evidence, petitioners' interpretation of the patent and respondent's interpretation were, at best, equally plausible. As such, judgment should have been entered in favor of petitioners. *See Athletic Alternatives, Inc.* v. *Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996) ("Where there is an equal choice between a broader and a narrower meaning of a claim . . . we consider the notice function of the claim to be best served by adopting the narrower meaning").

[6] The Federal Circuit also relied on its view that under petitioners' interpretation of the patent, the resin listed in the patent as the "preferred embodiment" for the invention, Amberlyst 15, would be excluded from coverage because it swells more than 50% in volume when exposed to acetic acid. *This view is contrary to the record* and, in any event, based on evidence that should have been irrelevant to the claim interpretation process. At the time the patent was drafted, the largest volume increase that the inventor had measured for Amberlyst 15 was 37%. Accordingly, petitioner's interpretation of the patent is wholly consistent with what the inventor and respondent knew at the time of its drafting.

In contrast, the information about the swelling characteristics of Amberlyst 15 that the Federal Circuit relied on was not known to either party until petitioners performed additional tests *after* this litigation began, some 15 years after the patent was drafted. Thus, the Federal Circuit improperly relied on information concerning the swelling characteristics of Amberlyst 15 that was not only unavailable to petitioners when they construed the patent, but also unknown to respondent when the claims were drafted. In any event, the Federal Circuit's conclusion with respect to the new test results is not supported by any of the trial testimony. To the contrary, Dr. Hilton *conceded* in his testimony that even under petitioners' tests, which showed a volume increase in

This change of course in the decisional law in the Federal Circuit is inconsistent with the notice principles of the patent law and will cause great uncertainty about the scope of existing patents. The views of the inventor, unlike the objective sources of evidence traditionally used for interpreting technical terms (*e.g.*, patent documents, prosecution history, treatises and scientific articles), are completely unavailable to members of the public who endeavor to respect the patent in good faith. Indeed, the testimony of the inventor may be entirely a product of litigation, as it is designed to resolve an ambiguity in the patent that cannot be resolved through other sources of extrinsic evidence.

The Federal Circuit's reliance on information that was not part of the patent and unavailable to petitioners vitiates the notice provision of the patent law. The provision requires that the patent claims "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112. The requirement that the patentholder draft his claims with particularity is designed to ensure that the world receive definite notice of the invention that is to be protected and, correspondingly, definite notice of any subject matter that is not within the scope of the patent and therefore can be freely used. See *Markman* v. *Westview Instruments, Inc.*, 116 S. Ct. 1384, 1387 (1996) ("It has long been understood that a patent must describe the exact scope of an invention and its manufacture to 'secure to [the patentee] all to which he is entitled, [and] to apprise the public of what is still open to them.' ") (quoting *McClain* v. *Ortmayer*, 141 U.S. 419, 424 (1891)); *Bonito Boats, Inc.* v. *Thunder Craft Boats, Inc.*, 489 U.S. 141, 150-51, 159 (1989) (the federal patent system holds out a bargain "of disclosure in ex-

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Amberlyst 15 of slightly over 50%, Amberlyst 15 was *not* excluded from the patent. Furthermore, Dr. Hilton testified that he never measured a linear change in diameter—that he only measured change in volume, with the largest measured increase at 37%.

change for exclusive use"); *Universal Oil Prods. Co.* v. *Globe Oil & Refining Co.*, 322 U.S. 471, 484 (1944) ("*quid pro quo*" for monopoly is "precision of disclosure"). Under the Federal Circuit's decision, however, the process of claim interpretation by third parties is relegated to a guessing game.

Without clear and definite notice, inventors cannot ascertain the limits of existing patents, and as a result are chilled from pursuing innovations for fear of inadvertently invading existing patent rights. See *Universal Oil*, 322 U.S. at 484-85 (claims must be stated with specificity "for the very purpose of protecting the public against extension of the scope of the patent"); *United Carbon Co.* v. *Binney & Smith Co.*, 317 U.S. 228, 236 (1942) ("A zone of uncertainty which enterprise and experimentation may enter only at the risk of infringement claims would discourage invention only a little less than unequivocal foreclosure of the field"). Thus, the notice requirement ensures the predictability and certainty that this Court has recognized are critical to a sound patent system. *United Carbon*, 317 U.S. at 232 ("The [patent] statute seeks to guard against unreasonable advantages to the patentee and disadvantages to others arising from uncertainty as to their rights").

While patent documents are supposed to provide precise notice of the scope of protected inventions, the practical reality is that courts often must examine extrinsic evidence in order to determine the meaning of technical language and terms in patent documents. This is because patents are directed to and written for those who are skilled in particular technical arts. As a result, courts often need help if they are to construe patent documents "as one skilled in the art would construe them." *SmithKline Diagnostics, Inc.* v. *Helena Lab. Corp.*, 859 F.2d 878, 882 (Fed. Cir. 1988); *Specialty Composites* v. *Cabot Corp.*, 845 F.2d 981, 986 (Fed. Cir. 1988).

In construing patent documents, courts always begin with the language of the claims themselves, as well as

other portions of the documents, such as the specification and the other claims that are not at issue. *North Am. Vaccine* v. *American Cyanamid Co.*, 7 F.3d 1571, 1575 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 1645 (1994); *SmithKline Diagnostics*, 859 F.2d at 882. When the documents are not dispositive, courts turn to extrinsic sources that educate them as to how those skilled in the art use and understand particular technical terms. Such sources include, *inter alia*, dictionaries, learned treatises, scientific articles, and expert testimony. See, *e.g.*, *Markman* v. *Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (en banc), *aff'd*, 116 S. Ct. 1384 (1996). This evidence, all of which is publicly available, "may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history." *Id.*

In this case, the Federal Circuit relied on a type of extrinsic evidence that is wholly different in kind and purpose—litigation-induced testimony of the inventor as to what the patent was *intended* to cover. Such testimony is different from testimony that inventors routinely give as experts in the relevant art. Inventors, not surprisingly, are often specialists in a particular field who can explain scientific principles and terms of art to the court. Accordingly, they are frequently proffered as technical experts. In this case, however, the inventor, Dr. Hilton, was not merely proffered as a technical expert to help the court understand scientific terminology, but also testified as to what he *intended* the terms "stable" and "dimension" to mean when the patent document was drafted. This "intent" testimony was nothing more than an attempt to cure a deficiency that rendered the patent subject to conflicting interpretations. All of the objective evidence, including the expert testimony, was inconclusive as to the accepted meaning of the disputed terms—suggesting that there is *no* standard meaning in the field for

those terms.[7] Thus, the term "dimension" should have been defined in the patent. Dr. Hilton's subjective testimony as to how he *meant to define* the term was a transparent attempt to fill that gap.

While expert testimony by inventors is fully consistent with the purposes of the patent laws, inventor testimony concerning the *intended* meaning of badly-drafted patent documents flies in the face of the patent law's notice provision. That provision places the burden on patentees to draft their claims and specifications with particularity so that the public can have clear notice of the limits of existing patents. See, *e.g.*, *General Elec. Co.* v. *Wabash Appliance Corp.*, 304 U.S. 364, 369 (1938) ("*The inventor* must 'inform the public during the life of the patent of the limits of the monopoly asserted' ") (quoting *Permutit Co.* v. *Graver Corp.*, 284 U.S. 52, 60 (1931)) (emphasis added); *White* v. *Dunbar*, 119 U.S. 47, 52 (1886) ("The claim is a statutory requirement, prescribed for the very purpose of making *the patentee* define precisely what his invention is") (emphasis added). When a patentee fails to meet this burden, courts should not rely on *post hoc* inventor testimony to rescue the patentee from the consequences of his own deficient explanations. Inventor testimony is not available to members of the public who must construe patents *ex ante*, and the purposes of the notice provision are contravened—as are principles of fundamental fairness—when courts

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[7] The panel recognized that its prior decision in *Markman* "limits appellate reliance on extrinsic evidence to evidence in explanation of the technology and technical terms," and precludes appellate courts from " 'crediting certain evidence over other evidence,' " Pet. App. 5a (quoting *Markman*, 52 F.3d at 981), but then stated that it had found it necessary to "credit certain evidence over other evidence," Pet. App. 6a, in construing the '806 patent because the evidence was sharply in conflict. This statement is revealing both because it demonstrates that there was more than one reasonable interpretation of the patent supported by objective extrinsic evidence, and because it illustrates the unresolved tension within the Federal Circuit on claim interpretation issues.

rely on such testimony *ex post* to resolve infringement suits. This is particularly true where, as here, the inventor is still employed by the patentholder and his opinion is unquestionably "litigation induced."

In sum, the Federal Circuit's reliance on inventor testimony to construe patents injects uncertainty and arbitrariness into the system, and contravenes the express requirement of section 112 that the patent claims "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." To put it simply, the methodology followed by the Federal Circuit in this case converts claim interpretation into a guessing game. Indeed, the guessing game as shown here can be a very dangerous one in which inventors risk being held liable for millions of dollars and held guilty for willful infringement.

Indeed, section 112 was designed to avoid the very result that occurred in this case. Respondent's patent document is defective because it fails to define the key term "dimension," which is referenced in the dispositive term "stable." Petitioners endeavored to construe the patent claim terms in good faith, based on a careful reading of the entire patent and other publicly available information in light of their understanding of how these technical terms are customarily used in the art. In reliance on their good faith conclusion that "dimension" must refer to volume, petitioners were confident that their iodide-removal process did not infringe respondent's patent. The courts below concluded otherwise, based on self-serving testimony of the inventor that was wholly unavailable to petitioners, who only had the patent document itself and their knowledge of the state of the art to rely on. The inventor testimony was critical because under the objective evidence, petitioners' interpretation of the patent and respondent's interpretation were both plausible. Thus, despite the fact that petitioners' interpretation of the patent was reasonable in light of the

evidence available to them, they were found liable for infringement and were required to pay substantial royalties, including enhanced damages, and change their iodide-removal process. This case thus provides a compelling vehicle for the Court to complete the process begun in *Markman* and extended in *Hilton Davis, viz.*, to formulate both procedural and substantive rules of claim construction that will effectively promote the goal of greater certainty in patent law.

2. It is critical that the Court review this question now, and not await further "percolation" in the lower federal courts. The Federal Circuit's exclusive appellate jurisdiction of all patent infringement cases nationwide, 28 U.S.C. § 1295(a)(1), gives special significance for *certiorari* purposes to disagreements and inconsistencies among panels of that court. This Court's grant of the petitions in *Markman* and *Hilton Davis* is indicative of that special significance. See also *Cardinal Chem. Co.* v. *Morton Int'l, Inc.*, 508 U.S. 83, 89 (1993) ("Because the Federal Circuit has exclusive jurisdiction over appeals from all United States District Courts in patent litigation, the rule that it applied . . . is a matter of special importance to the entire Nation. We therefore granted certiorari").

Prompt review is also important because the inconsistent approaches taken by panels of the Federal Circuit create uncertainty among district courts and litigants as to whether inventor testimony can be considered as part of the claim interpretation process. The decision below also threatens the predictability of the patent system as a whole, as innovators do not know whether they can rely on the patent documents to ascertain the scope of prior claimed inventions, or whether they must try to anticipate inventor testimony that could broaden the scope of the prior patents. Finally, the Federal Circuit's inconsistency on this issue will lead to disparate outcomes in similar cases, which is fundamentally unfair to

litigants who cannot control which panel of the court hears their appeal. Such disuniformity will continue and recur unless this Court grants review.

II. THE FEDERAL CIRCUIT'S FAILURE TO CONSIDER THE DOCTRINE OF EQUIVALENTS ISSUE REQUIRES THIS CASE TO BE HELD PENDING THIS COURT'S DECISION IN *HILTON DAVIS*.

In *Hilton Davis,* this Court will address the scope and nature of the cause of action for patent infringement under the doctrine of equivalents. Indeed, the petitioners in *Hilton Davis* are asking this Court to hold that any such cause of action is fundamentally incompatible with the 1952 Patent Act, and therefore should be abandoned altogether. See Brief for Petitioner at 41-49, *Warner-Jenkinson Co.* v. *Hilton Davis Chem. Co.*, No. 95-728, *cert. granted,* 116 S. Ct. 1014 (Feb. 26, 1996). That is, the petitioners in *Hilton Davis* are asking this Court to hold that the only theory of recovery consistent with the Patent Act is literal infringement.

In the alternative, the petitioners in *Hilton Davis* are asking the court to establish narrow legal standards for the application of the doctrine of equivalents. See *id.* at 31-41. Finally, another question posed in *Hilton Davis* is whether the doctrine of equivalents is an issue of fact to be decided by the jury, or an equitable remedy to be considered by the court in select cases. See 62 F.3d at 1516, 1522-23 (holding that "infringement under the doctrine of equivalents is an issue of fact to be submitted to the jury").

The court of appeals completely ducked the equivalents issue in this case solely on the basis that the motion for directed verdict failed specifically to object to the verdict of infringement on the separate equivalents issue. That holding is suspect on its own,[8] but it misses the

[8] Prior to its decision here, the Federal Circuit recognized that a motion for directed verdict of noninfringement necessarily en-

fundamental issue in this case, which is whether the doctrine of equivalents is a valid legal basis for upholding the jury's verdict of infringement in this case. That issue does not turn on the sufficiency of the evidence to go to the jury, which might be waived by an inexact motion for directed verdict, but is instead a purely legal question that is both squarely preserved and will be directly affected by the Court's disposition of *Hilton Davis*. If the doctrine of equivalents is abolished, significantly narrowed, or deemed to be an equitable remedy to be decided by the court, then it cannot serve as a valid legal basis for upholding the jury verdict of infringement in this case. If the jury never should have addressed the issue, or should have addressed it under a different legal standard, then the verdict of infringement can be sustained, if at all, under the theory of literal infringement.

It is therefore plain that this Court's treatment of the doctrine of equivalents in *Hilton Davis* carries with it a substantial likelihood of affecting the proper disposition of this second question. Moreover, the Court's handling of the issue and its decision concerning the proper role of notice in patent law in general will significantly affect the proper approach to take with respect to the first question. Accordingly, the prudent course for the Court to follow at this juncture is to hold the petition until after *Hilton Davis* is decided and then dispose of the case as appropriate in light of that decision.

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compasses both literal infringement and infringement under the doctrine of equivalents. *Malta* v. *Schulmerich Carillons, Inc.*, 952 F.2d 1320, 1324-25 (Fed. Cir. 1991) (defendant's oral motion for directed verdict "on the issue of noninfringement" "no doubt" supported the defendant's motion for JNOV of noninfringement under the doctrine of equivalents), *cert. denied*, 504 U.S. 974 (1992). Moreover, *Malta* comports with the universal recognition under existing patent law that the term "infringement" refers to both literal infringement and infringement under the doctrine of equivalents.

At that point the Court either could grant the petition to decide the substantive elements of claim construction posed in the first question or remand to allow the court of appeals to review the case in light of the Court's analysis of the validity of the doctrine of equivalents, the trial court's proper role in it, and the correct legal standards to be applied. Either way, the proper disposition of this petition will be enhanced significantly if the Court's decision is informed by the teachings of *Hilton Davis*.

CONCLUSION

The petition for Writ of Certiorari should be held pending the disposition of *Hilton Davis* and then decided as appropriate in light of that decision, or alternatively, the Court should grant the petition.

Respectfully submitted,

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June 17, 1996

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APPENDICES

APPENDIX A

UNITED STATES COURT OF APPEALS
FEDERAL CIRCUIT

No. 94-1472

HOECHST CELANESE CORPORATION,
Plaintiff-Appellee,
v.

BP CHEMICALS LIMITED and
STERLING CHEMICALS, INC.,
Defendants-Appellants.

Appealed from U.S. District Court
for the Southern District of Texas (Galveston)
Samuel B. Kent, Judge

March 19, 1996

Before PAULINE NEWMAN, CLEVENGER, and RADER, Circuit Judges.

PAULINE NEWMAN, Circuit Judge.

BP Chemicals Limited and Sterling Chemicals, Inc. (together "BP") appeal the judgment of the United States District Court for the Southern District of Texas,[1]

[1] *Hoechst Celanese Corp. v. BP Chemicals, Ltd.*, 846 F.Supp. 542, 31 USPQ2d 1825 (S.D.Tex. 1994).

entered on the jury verdict that BP had infringed, willfully, United States Patent No. 4,615,806 (the '806 patent) owned by Hoechst Celanese Corporation (herein "Celanese"). On re-determination of the issues of claim interpretation, as mandated by *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 34 USPQ2d 1321 (Fed. Cir.) (*en banc*), *cert. granted*, —— U.S. ——, 116 S.Ct. 40, 132 L.Ed.2d 921 (1995), and on review of the other issues on appeal, the judgment is affirmed.

I

INFRINGEMENT

A. The Invention

The '806 patent, inventor Dr. Charles B. Hilton, is directed to a method of reducing iodide contamination in organic medium, particularly acetic acid. When the acetic acid is catalytically converted to vinyl acetate, the presence of iodide in more than about one part per billion poisons the catalyst. Such iodide contamination was known to be removable by contacting the acetic acid with silver-charged gel ion exchange resins, but the process was slow and impractical in large commercial volume. In seeking to improve the Celanese commercial process, Dr. Hilton discovered that by using a macroreticulated (sometimes described as macroporous) silver-charged cation exchange resin having specified characteristics, he obtained effective, rapid, large-volume removal of minute traces of iodine, to a degree of effectiveness, practicality, and utility not previously available.

When BP encountered iodide contamination in the commercial production of acetic acid BP sought other methods of removal before adopting the method, using a macroreticulated silver-charged cation exchange resin, that is charged with infringement. Celanese brought suit, asserting that the BP method infringed claims 2 and 6

of the '806 patent. Claim 2 is shown, with claim 1 from which it depends:

> 1. A method for removing iodide compounds from a non-aqueous organic medium comprising contacting the medium containing said iodide compounds with an ion exchange resin characterized in that the resin is a macroreticulated strong-acid cation exchange resin which is stable in the organic medium and has at least one percent of its active sites converted to the silver or mercury form.
>
> 2. The method of claim 1 wherein the non-aqueous organic medium is acetic acid and from about 25 to about 75 percent of the active sites are in the silver form.

The question of infringement turns on the meaning of the word "stable" in the claims. It is no longer disputed that all of the other claim elements and limitations are present in the BP method.

B. Review Procedure

Trial was to a jury, lasting for seven days. The jury found that the '806 patent was infringed and that the infringement was willful. The district court, denying duly made motions for a new trial and for judgment as a matter of law, entered judgment on the jury verdict. In its opinion the court identified the evidence in support of the jury verdict, identified the evidence supporting each party's theory of the meaning of certain disputed terms in the patent, and stated its own view of the meaning of these terms. In following this procedure the court relied on *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 822 n. 3, 23 USPQ2d 1426, 1432 n. 3 (Fed.Cir. 1992), as requiring or advising that a judicial statement be made of the meaning of disputed claim terms.

BP points out that *Read v. Portec* has been superseded by the decision in *Markman v. Westview Instru-*

ments, Inc., 52 F.3d 967, 34 USPQ2d 1321 (Fed.Cir.) (*en banc*), *cert. granted*, —— U.S. ——, 116 S.Ct. 40, 132 L.Ed.2d 921 (1995), and that *Markman* requires the Federal Circuit to decide *de novo* disputed questions of claim interpretation without deference to the trier of fact. BP points out that the disputed question of the meaning of the claim term "stable" is dispositive of the issue of infringement, and therefore that no deference need be given to the jury's finding of infringement. We agree that *Markman* so requires, and that the issue of infringement is decided by the meaning of "stable" as used in the claims. *See Markman*, 52 F.3d at 999, 34 USPQ2d at 1346 (Pauline Newman, J., dissenting) (pointing out that the disputed meaning of technical terms often decides the fact of infringement).

"Stable" is defined in the body of the specification as turning on the meaning of "dimension." Although "dimension" appears in the specification, not in the claims, implementation of the *Markman* decision appears to require that the meaning of "dimension" be given the same *de novo* determination by the Federal Circuit as the meaning of "stable" in the claims, lest we add further complexities to the trial of patent cases.

C. Construction of the Terms "Stable" and "Dimension"

A technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning. *ZMI Corp. v. Cardiac Resuscitator Corp.*, 844 F.2d 1576, 1579, 6 USPQ2d 1557, 1560 (Fed.Cir.1988); *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1387, 21 USPQ2d 1383, 1386 (Fed.Cir.1992).

The meaning of "stable" as used in the claims is defined in the specification, col. 4, lines 31-35, as follows:

> By the term "stable," it is meant that the resin will not chemically decompose, or change more than about 50 percent of its dry physical dimension upon being exposed to the organic medium containing the iodide compounds.

Thus the meaning of "stable" depends on the meaning of "dry physical dimension." On the BP position that "dry physical dimension" refers to volume, the BP process does not infringe; but on the Celanese position that "dimension" is a linear measure, there is literal infringement. Celanese states that linear dimension is the plain meaning of "dimension" as understood by persons of skill in this field and as used by the inventor. The BP position is that the term "stable" refers to volume as the physical dimension being measured, pointing out that the resin is in the shape of spherical beads and that the inventor in his research measured volume change. BP states that since its resin changes by more than 50% in volume when exposed to acetic acid, there can not be infringement.

The parties have provided us with photographs and experimental data, the testimony of the scientists who produced the data and interpreted it, and the testimony of experts in the field. *Markman* limits appellate reliance on extrinsic evidence to evidence in explanation of the technology and technical terms:

> Through this process of construing claims by, among other things, using certain extrinsic evidence that the court finds helpful and rejecting other evidence as unhelpful, and resolving disputes *en route* to pronouncing the meaning of claim language as a matter of law based on the patent documents themselves, the court is not crediting certain evidence over other evidence or making factual evidentiary findings. Rather, the court is looking to the extrinsic evidence to assist in its construction of the written document, a task it is required to perform.

52 F.3d at 981, 34 USPQ2d at 1331. However, we have found it necessary to rely on the evidence presented at the trial and credit certain evidence over other evidence, for we are not personally qualified to know the scientific meanings of "stable" and "dimension" as applied to macroreticulated cation-exchange resins in organic medium.

The evidence was sharply in conflict. The technical expert presented by Celanese testified as follows:

> Q. The second part of this has to do with its dimension. What does that mean?
>
> A. For the case of a spherical resin, it typically means its diameter.
>
> Q. The word "dimension," does it mean volume dimension?
>
> A. There is no such thing as volume dimension.

In turn, the BP expert testified that "dimension" meant volume dimension, stating that volume is what one skilled in the art would understand the term to mean:

> Q. Okay. Is that all the reasons [why you believe the term "stable" refers to volume]?
>
> A. There are at least two, perhaps three, additional very important reasons. One is that really it is the common practice of measuring changes that a resin experiences as it swells in a solvent in terms of volume percentage swelling. That is very amply documented in the literature. It is the easiest thing to do. Conversely, it is rather difficult to pick a single bead, measure the change in diameter of that bead, for example, because not every one bead in a sample of resin is identical to the rest of the beads. . . .
>
> . . . .
>
> The other rather important reason is that it is clearly the objective of this patent to distinguish between a

> resin that works because it has a porosity independent of swelling, such as Amberlyst 15, and another type of resin which has a porosity that depends upon swelling. That would be the gel type resin in the language used by the patent.

Both sides cite dictionary definitions that support their respective positions. *Webster's Ninth New Collegiate Dictionary* at 355 (1988) defines "dimension" as:

> measure in one direction; *specif.* one of three coordinates determining a position in space or four coordinates determining a position in space and time.

In partial contrast, the *Concise Oxford Dictionary of Current English* at 327 (8th ed.1990) defines "dimension" as:

> a measureable extent of any kind, as length, breadth, depth, area, and volume.

This court has occasionally relied on general and technical dictionaries to determine the meaning of technical and other terms. In this case the dictionaries do not distinguish in a dispositive manner between the contested technical meanings. Further, a general dictionary definition is secondary to the specific meaning of a technical term as it is used and understood in a particular technical field. *See Hormone Research Found., Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1563, 15 USPQ2d 1039, 1043-44 (Fed.Cir.1990), *cert. dismissed*, 499 U.S. 955, 111 S.Ct. 1434, 113 L.Ed.2d 485 (1991). Thus we return to the testimony at trial.

Dr. Hilton, the inventor, testified under direct examination as follows:

> Q. What is meant by that sentence? In other words, how much swelling does that definition of stable accommodate?
>
> A. A 50 percent change in dimension. The dimension is a distance. A dimension is not volume.

> Okay? It's the distance between my hands, or it's the distance across my chest. It's the radius of a sphere. A dimensional change in a spherical particle of 50 percent would lead to a swelling or a volume increase of 337 percent.

Dr. Hilton was challenged as to his assertion that "dimension" means distance or linear dimension, for he had measured the swelling volume of these resins during his research. The following exchange occurred on cross-examination:

> Q. When did you first form a view that dimension means something other than volume dimension, dimension in this definition of stable?
>
> A. I have never thought of volume as being a dimension. Dimension is not—volume is not a dimension. Volume of a sphere formula, four thirds pi, disance cubed, radius cubed, distance times distance times distance. Dimension is a distance.
>
> Q. You've never head the term "volume" used as a dimension?
>
> A. No.
>
> Q. Yet you consider the volume expansion in order to design a guard bed, do you not?
>
> A. Yes, you do.
>
> Q. How many dimensions does volume have?
>
> A. Volume has three dimensions.

The district court called Dr. Hilton's testimony "highly credible." Although we are at a disadavntage in attempting to make credibility determinations, the inventor's testimony reads as that of an expert in the field. *See Palumbo v. Don-Joy Co.*, 762 F.2d 969, 976, 226 USPQ 5, 9 (Fed.Cir.1985) (concluding that particular inventor's declaration as to claim meaning was by a "knowledgeable declarant"), *overruled on other grounds,*

Markman, 52 F.3d at 979, 34 USPQ2d at 1329. *Markman* requires us to give no deference to the testimony of the inventor about the meaning of the claims. *Id.* at 983, 52 F.3d 967, 34 USPQ2d at 1332. However, we have treated Dr. Hilton's testimony as cumulative to the other evidence, and as enlarging our understanding of the technology and the usuage of the disputed terms.

In addition, the specification of the '806 patent shows the resin characteristic of mesh size of the dry resin, a linear measure based on diameter. The specification also contains swelling data stated to be from the Technical Bulletin for Amberlyst® 15 and which, according to the inventor's testimony, is the percentage of swelling by volume. A videotaped "swelling test" that was presented to the jury is stated to have shown that Celanese's preferred Amberlyst® 15 resin expanded slightly more than 50% by volume in acetic acid, while BP's Purolite® resin of the same chemical composition (polystyrene cross-linked with divinylbenzene) expanded 103% by volume but less than 50% in linear dimension upon exposure to acetic acid.

The district court observed that BP's interpretation of "stable" as meaning dimension by volume would exclude from the claims the Celanese preferred embodiment that is described in the specification. However, if stable is measured by linear dimension, the claims include the resin that Celanese specifies in its invention. We share the district court's view that it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way. *See Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1550, 37 USPQ2d 1609, 1612 (Fed.Cir. 1996) (claim interpretation that would exclude the inventor's device is rarely the correct interpretation).

We find that the more reasonable explanation is that volume has three dimensions, and we give weight to the

argument that on the BP definition the Celanese preferred embodiment would not be within the claims of the Celanese patent. Thus we conclude that "dry physical dimension" as used in the specification means linear dimension. On this definition of dimension, and defining "stable" accordingly, the claims read literally on the BP process.

D. The Issue of Equivalency

Since this case was tried before *Markman* was decided, the jury was instructed to interpret these disputed terms en route to its verdict on the issue of infringement. We thus turn to the jury trial, in the interest of complete review at this time.

BP argues that a new trial is required because the jury was not asked to distinguish between literal infringement and infringement by equivalency. BP states that because it is possible that the jury relied on an inapplicable theory of infringement, the verdict must be discarded.

Celanese had proposed the submission to the jury of separate questions on literal infringement and infringement by equivalency, while BP did not propose separate questions. The judge selected the BP form of verdict. The specificity of the verdict is within the discretion of the trial judge. *Allen Organ Co. v. Kimball Int'l, Inc.*, 839 F.2d 1556, 1561, 5 USPQ2d 1769, 1773 (Fed.Cir.) ("District courts have broad discretion in the conduct of jury trials, including the form of the jury verdict."), *cert. denied*, 488 U.S. 850, 109 S.Ct. 132, 102 L.Ed.2d 104 (1988). BP concedes that it had proposed the form of the verdict that was used, and states that the reason it did not propose a separate question on equivalency was because of its position that equivalency was an equitable matter and not for the jury. However, BP was fully apprised that the jury was instructed on infringement by equivalency, and that the issue had been presented by witnesses at trial. Further, BP's position was not the law

at the time of trial, nor is it now. *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 35 USPQ2d 1641 (Fed.Cir.1995) (*en banc*).

BP by its acquiescence in and indeed by its proposal of the verdict form waived objection to the verdict form. *See* Fed.R.Civ.P. 51; *Allen Organ*, 839 F.2d at 1562, 5 USPQ2d at 1774 (applying the general rule that a party will be deemed to have waived objection to possible inconsistencies in the jury verdict if it failed to raise such objection before the jury was discharged); *Matthews v. Ohio Barge Line, Inc.*, 842 F.2d 202, 206 (5th Cir. 1984) (failure to object to absence of separate interrogatories at trial precludes raising the issue on appeal). Although in egregious circumstances acquiescence in erroneous instructions may not be immune from remedy, *see Fruge v. Penrod Drilling Co.*, 918 F.2d 1163, 1169 (5th Cir.1990) ("Plain error requires that plaintiff establish the challenged instruction was an incorrect statement of the law and was probably responsible for an incorrect verdict, leading to substantial injustice."); *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1364, 220 USPQ 763, 774 (Fed.Cir.1984), in this case the instructions were not in error. Thus there is no basis for BP's objection now raised.

BP also argues that the issue of equivalency should not have been given to the jury because Celanese did not present sufficient evidence of equivalency. Celanese states that this purported insufficiency of the evidence was not raised at trial, either by motion for directed verdict or by request for jury instruction or in any other way before the case went to the jury. A party may not challenge a verdict in a post-trial motion for judgment as a matter of law absent a properly made motion for a directed verdict at the close of all the evidence. Fed.R. Civ.P.50(b); *Hinojosa v. City of Terrell, Tex.*, 834 F.2d 1223, 1227-28 (5th Cir.1988) ("[A] party may only base a motion for judgment notwithstanding the verdict

on a ground that he included a prior motion for directed verdict at the close of all the evidence.") (collecting cases); *Delta-X Corp. v. Baker Hughes Prod. Tools, Inc.*, 984 F.2d 410, 412, 25 USPQ2d 1447, 1449 (Fed.Cir. 1993) (interpreting Fifth Circuit law).

BP's directed verdict motion did not address the issue of equivalency or the sufficiency of the evidence to show equivalency, BP arguing only that there was no infringement of the "stable" limitation based on the "dimension" definition. BP argued in its motion for judgment as a matter of law that Celanese's electron micrographic evidence, showing a macroreticulated structure for both Amberlyst® 15 (used by Celanese) and Purolite® (used by BP) resin, was not sufficient to prove similarity of the "way" the resin worked. Celanese states that BP's silence or inadequate objection, in its directed verdict motion, to the now-asserted deficiency in Celanese's proofs, deprived Celanese of the opportunity to cure any such deficiency before the case was submitted to the jury.

Providing the opportunity to the nonmovant to repair gaps in its proofs is the reason Rule 50(b) is rigorously applied. *See generally Cone v. West Virginia Pulp & Paper Co.*, 330 U.S. 212, 67 S.Ct. 752, 91 L.Ed. 849 (1947) (discussing the opportunities pursuant to Rule 50(b) for litigants and trial judge to correct errors before appeal is taken). BP disputes Celanese's view of the content of BP's motions, stating that it moved and filed a supporting memorandum for directed verdict after plaintiff's case and at the close of the evidence, pointing out the inadequacies of the evidence. Our review of BP's memorandum in support of its motion for directed verdict detects no mention of the doctrine of equivalents; the memorandum focuses entirely on the meaning of "stable."

As we have discussed, on the correct claim interpretation the claims are literally infringed. This jury's verdict of infringement is consistent with our ruling based on claim interpretation. In addition, the district court re-

viewed the evidence, referred to the insubstantial nature of BP's variation of the patented process, and stated that the verdict of infringement was "overwhelmingly supported by the evidence." On review of the entirety of the proceeding, we have not been shown grounds for reversal or for a new trial. *See Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 225 USPQ 634 (Fed. Cir.), *cert. dismissed*, 474 U.S. 976, 106 S.Ct. 340, 88 L.Ed.2d 326 (1985).

E. BP's Separate Patent on its Process

BP directs our attention to its "Jones patent," U.S. Patent No. 5,003,104, and asks that we take judicial notice that BP is practicing a process that is separately patentable, arguing that this is presumptive evidence of non-infringement.

BP's Jones patent was not introduced at trial, Celanese says intentionally because it showed that the Purolite® resin used by BP was "likely macroreticulated," an issue that was contested at trial although not on appeal. As the district court remarked, a reasonable jury could have discredited the BP tests wherein the pores of the resin were first collapsed by high heat or a drying process, evidence that the district court called "extremely dubious." Although there is much argument on this point on appeal, we decline to consider disputed evidence that could have been but was not offered at trial. Indeed, the proposition for which it is offered is incorrect. *See Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1580, 224 USPQ 409, 417 (Fed.Cir.1984) (an improvement in a step of a patented method, even if separately patentable, may not avoid infringement). *See also National Presto Indus., Inc. v. West Bend Co.*, 76 F.3d 1185, 1192, 37 USPQ2d 1685, 1689 (Fed.Cir.1996) (the fact of separate patentability is relevant and should be weighed, but is not dispositive of noninfringement).

The fact of separate patentability presents no legal or evidentiary presumption of noninfringement and, in this

case, does not outweigh the substantial evidence supporting the jury verdict of infringement.

Conclusion

On the correct interpretation of "stable" as measured by linear dimension, the claims read on the accused method. Alternatively, there was substantial evidence whereby a reasonable jury could have found infringement. The judgment of infringement is affirmed.

II

WILLFUL INFRINGEMENT

BP argues that the jury verdict of willful infringement should be reversed, asserting that the question of infringement was a close one, and thus can not be deemed willful as a matter of law.

The issue of willfulness of wrongdoing is a question of fact, and was presented to the jury for decision. On appellate review of the jury verdict, if there was substantial evidence in support of the verdict it is not subject to reversal on appeal. *See Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1581, 1 USPQ2d 1081, 1091 (Fed.Cir.1986).

The issue of "willful" infringement measures the infringing behavior, in the circumstances in which the infringer acted, against an objective standard of reasonable commercial behavior in the same circumstances. Willful infringement is thus a measure of reasonable commercial behavior in the context of the tort of patent infringement. The extent to which the infringer disregarded the property rights of the patentee, the deliberateness of the tortious acts, or other manifestations of unethical or injurious commercial conduct, may provide grounds for a finding of willful infringement and the enhancement of damages. *Amsted Indus. Inc. v. Buckeye Steel Castings Co.*, 24 F.3d 178, 181 30 USPQ2d 1462, 1464 (Fed.Cir.1994).

See American Medical Sys., Inc. v. Medical Eng. Corp., 6 F.3d 1523, 1531, 28 USPQ2d 1321, 1326 (Fed.Cir. 1993) (determining whether infringer had a "reasonable good faith belief" in noninfringement); *State Indus., Inc. v. Mor-Flo Indus., Inc.*, 883 F.2d 1573, 1581, 12 USPQ2d 1026, 1032 (Fed.Cir.1989) ("copying is evidence of willful infringement"), *cert. denied*, 493 U.S. 1022, 110 S.Ct. 725, 107 L.Ed.2d 744 (1990).

The jury was instructed as follows:

> Willful infringement is established where Celanese has proven that BP and Sterling (i) were aware of Celanese's patent; and (ii) had no reasonable basis for reaching a good faith conclusion that using their method avoided infringement of the patent. Infringement is not willful and deliberate if the party found to be infringing had a reasonable basis to believe that the patent is invalid or not infringed.
>
> You may find that BP and Sterling willfully infringed the '806 patent if you find, by clear and convincing evidence, that BP and Sterling failed to exercise due care to determine whether or not they were infringing the patent, after they had actual notice of the patent.

BP does not assert error in the instruction, and we discern none. However, BP argues that the verdict is not supported by substantial evidence, pointing to its own evidence and the comments by the trial judge that the case was a close one. *See Sun Studs, Inc. v. ATA Equipment Leasing, Inc.*, 872 F.2d 978, 10 USPQ2d 1338 (Fed.Cir.1989) (reviewing to determine whether jury verdict is supported by substantial evidence on the record as a whole), *overruled as to laches, A.C. Aukerman Co. v. R.L. Chaides Const. Co.*, 960 F.2d 1020, 1038, 22 USPQ2d 1321, 1333 (Fed.Cir.1992) (*en banc*).

There was evidence that BP conducted research in an effort to avoid the Celanese process, and that BP turned

to the process that was found to be infringing only after failing to find some other solution to the problem of iodide contamination. BP argues that infringement that is not literal, but is found only by equivalency, can not be willful for it shows BP's good faith effort to avoid the patent. Such facts when present are of course relevant, but it is not a rule of law that infringement that is not literal can never be sufficiently culpable to warrant enhanced damages. Although avoidance of literal infringement is a fact to be considered and weighed, along with other relevant facts, it is not an automatic exculpation. And in this case, as we have discussed, the infringement is literal.

BP requested reexamination of the Celanese patent six months before trial. The district court declined to stay the trial, and the proceedings went forward concurrently. This procedure was fully within the court's discretion, lest the trial schedule be manipulated or unduly delayed. However, BP also argues that the acceptance by the patent examiner of the reexamination request was evidence of the closeness of the question and supports the position that infringement was not willful.

We take notice that the grant by the examiner of a request for reexamination is not probative of unpatentability. The grant of a request for reexamination, although surely evidence that the criterion for reexamination has been met (*i.e.*, that a "substantial new question of patentability" has been raised, 35 U.S.C. § 303), does not establish a likelihood of patent invalidity.[2] *See Acoustical Design, Inc. v. Control Elecs. Co.*, 932 F.2d 939, 942, 18 USPQ2d 1707, 1710 (Fed.Cir.) ("initial rejection by the Patent and Trademark Office of original claims that later were confirmed on reexamination hardly

[2] The Annual Report of the Patent and Trademark Office for 1994 states that 89% of the reexamination requests were granted that year, but only 5.6% of the reexamined patents were completely rejected with no claims remaining after reexamination.

justifies a good faith belief in the invalidity of the claims"), *cert. denied*, 502 U.S. 863, 112 S.Ct. 185, 116 L.Ed.2d 146 (1991).

The issue of willful infringement was thoroughly argued to the jury, whose determination must be upheld if any set of facts supported by substantial evidence is capable of sustaining the verdict. *Orthokinetics*, 806 F.2d at 1580, 1 USPQ2d at 1091. Although we do not know whether the jury's finding of infringement was based on literal infringement or on equivalency, on the entirety of the record there was substantial evidence whereby a reasonable jury could have found willfulness. The verdict must be sustained.

III

SANCTIONS

Celanese asserts that BP's appeal is frivolous, and requests the imposition of sanctions.

BP's appeal was taken as of right, on disputed and technologically complex facts. Although a jury verdict warrants deference on appeal, in light of this court's conflicting holdings, now resolved in *Markman*, that issues of claim interpretation in infringement actions must be decided *de novo* on appeal, a losing party having a colorable argument can not be faulted for seeking appellate attention after a jury trial. Although we have affirmed the district court's judgment, BP's arguments on the merits are clearly not frivolous. Unwarranted accusations of frivolousness, and the satellite litigation generated by unsupported requests for sanctions, are no less burdensome to the court and the parties than are authentically frivolous appeals.

AFFIRMED.

APPENDIX B

UNITED STATES DISTRICT COURT
S.D. TEXAS
GALVESTON DIVISION

Civ. A. No. G-93-001

HOECHST CELANESE CORPORATION

v.

BP CHEMICALS LIMITED and
STERLING CHEMICALS, INC.

March 8, 1994

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER ON POST-VERDICT MOTIONS

KENT, District Judge.

This action came to trial on January 10, 1994, before the Court and a jury. The jury returned a verdict, finding that Defendants BP Chemicals and Sterling Chemicals had infringed U.S. Patent No. 4,615,806 (the '806 patent), owned by Plaintiff Celanese; that such infringement was willful; that the '806 patent was not obvious; that the application for the '806 patent did not fail to disclose the inventors' best mode of practicing the invention, or the identity of co-inventors; and that a reasonable royalty for the use of the invention was six-tenths of one cent per pound of acetic acid produced with the infringing pro-

cess. Before the Court are the Defendants' motions for judgment as a matter of law and judgment on the issue of inequitable conduct, and Plaintiff's motions for judgment on the verdict, enhanced damages, permanent injunction, pre-judgment interest, costs, and attorney's fees. To the extent these motions raise issues of fact to be decided by the Court, the following opinion embodies the Court's findings of fact as well as its conclusions of law.

I. Background

As described in its abstract, the '806 patent generally relates to a method for removing iodide compounds from a non-aqueous organic medium, such as acetic acid, whereby the medium is contacted with a macroreticulated strong-acid cation exchange resin which is stable in the organic medium and has at least one percent of its active sites converted to the silver or mercury form. In particular, the patent covers a process for removing iodides from acetic acid by passing the acid over a "guard bed" of resin beads which have been "charged" with silver. The patent discloses that the preferred resin for the invention is a specific commercially-available product sold by Rohm & Haas under the trademark "Amberlyst 15."

For a stipulated 18-month period in 1992 and 1993, the Defendants produced a stipulated quantity of acetic acid—931,923,636 pounds—by utilizing a guard bed with nearly identical properties and purposes as that described in the '806 patent. The only distinguishing aspect of the Defendants' process was that the Defendants' guard bed used, rather than Amberlyst 15, a commercially-available resin called "Purolite C-145." At trial, the Defendants contended that the use of Purolite C-145 is not claimed by the '806 patent.

II. Judgment N.O.V.

A. Infringement

The process claimed by the '806 patent requires a "macroreticulated" strong-acid exchange resin which is "stable" in the organic medium. The Defendants contend that no substantial evidence supports the jury's finding that Purolite C-145 is either macroreticulated or stable, as defined in the '806 patent. Accordingly, the Defendants argue that their process cannot infringe the patent as a matter of law.

To prevail on a motion for judgment notwithstanding the verdict, a party must show (1) that reasonable persons, in light of the evidence before them, could not have found the facts necessary to support the jury's verdict; or (2) that the facts properly found cannot in law support that verdict. *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 821 (Fed.Cir.1992). In reviewing factual findings, the Court must consider all of the evidence, in the light most favorable to the non-movant, drawing reasonable inferences, without simply substituting its choice for that of the jury between conflicting elements in the evidence. *Dana Corp. v. IPC Ltd. Partnership*, 860 F.2d 415, 417 (Fed.Cir. 1988), *cert. denied*, 490 U.S. 1067, 109 S.Ct. 2068, 104 L.Ed.2d 633 (1989). In reviewing the legal conclusions implicit in the verdict, the Court should review *de novo* the legal issues supporting the verdict. *Read Corp.*, 970 F.2d at 821.

At trial, the Defendants presented evidence supporting a colorable argument that the '806 patent defines "macroreticulated" in a manner which excludes the Purolite resin. The patent specification defines macroreticulated resins as the "non-gel-type," and further defines gel-type resins as those which depend on swelling for their porosity. Although the Defendants presented no evidence that anyone knowledgeable in the field of resins would call Purolite C-145 a "gel-type" resin, the Defendants nonetheless

argue that the patent's definition of this term of art excludes C-145 because some evidence showed that this resin depends on swelling for its porosity.

The jury properly rejected such an overly strained interpretation of the claims of the '806 patent, as the evidence overwhelmingly supported a contrary conclusion. Purolite itself describes its product as "macroporous," a term which the vice-president of Purolite (among others) testified is synonymous with "macroreticulated." The evidence showed that, unlike gel-type resins, C-145 is made with a porogen and, in fact, has substantial porosity when compared to gel-type resins. In contrast, Defendants' evidence that C-145 is not macroreticulated, as defined in the '806 patent, appeared exceedingly dubious. Accordingly, the Court finds that the jury properly applied the evidence to the correct interpretation of the '806 patent in finding that Purolite C-145 is a macroreticulated resin, both as defined in the patent and as defined generally by scientists in the resin field.

In contending that Purolite C-145 is not "stable" as defined in the '806 patent, the Defendants attack the jury's finding on a much closer issue. The '806 patent specification partially defines a "stable" resin as one which will not change more than about 50 percent of its dry physical dimension upon being exposed to an organic medium, such as acetic acid. The Defendants contend that this specification must refer to the resin's *volume* change. When exposed to acetic acid, Purolite C-145 swells with a volumetric increase of slightly more than 100%. Therefore, by the Defendant's interpretation, C-145 is outside the strict limitations of the resin described in the '806 patent. Celanese, on the other hand, argued that the 50% figure refers to the *linear* dimension of the resin beads; by this measure, C-145 is well within the literal terms of the patent.

At trial, the Defendants pointed to substantial circumstantial evidence in favor of their interpretation, such

as the inventor's testimony that he had always measured the swelling of resins in terms of volume, not linear dimension. Celanese, however, countered with expert testimony that the word "dimension" does not describe a "volume" measurement; evidence that a limitation of 50% volume swelling would lead to the improbable result that the patent's own "best mode" resin—Amberlyst 15—is excluded from the scope of the patent; and evidence that resin beads are commonly measured by their diameter. Therefore, substantial evidence supports a conclusion that Purolite C-145 is "stable" within the literal meaning of the '806 patent.

Moreover, the jury could permissibly have found that the Defendants' use of Purolite C-145 infringed the '806 patent *even if* they believed that the stability requirement referred to volumetric changes. Under the doctrine of equivalents, a process infringes a patent, even if each limitation of the patent's claim is not literally found in the accused process, if the accused process performs substantially the same function as that of the patented process, by substantially the same means, to achieve substantially the same result. *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 608, 70 S.Ct. 854, 856, 94 L.Ed. 1097 (1950). This standard perfectly describes the minimum relationship between the accused and patented processes at issue here.

The evidence at trial showed that the volumetric swelling of Purolite C-145 is the only reasonably arguable distinction between the process used by the Defendants and that described in the '806 patent. Otherwise, the Defendants charged this macroretriculated strong-acid exchange resin with silver, and placed it in a guard bed in order to remove iodides from a stream of acetic acid—just as described in the patent. Even if Defendants' resin choice did not literally infringe the '806 patent, the Court cannot envision circumstances which would more clearly qualify for the protection of *Graver:* the Defendants'

process performs the *identical* function of the '806 patent, to achieve *identical* results, by almost (if not literally) the *idential* means. Accordingly, the Court finds the jury's verdict of infringement to be overwhelmingly supported by the evidence.

Alternatively, to the extent this finding is within the exclusive province of the Court, the Court independently finds infringement.[1] To hold otherwise would permit the Defendants "to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law." *Graver Tank*, 339 U.S. at 607, 70 S.Ct. at 856.

B. Willfulness

The Defendants stipulated at trial that they were aware of the '806 patent at the time they began using their infringing process. Furthermore, their own testimony established that they knew of the patent when they began trying to develop a means of accomplishing the same result as that achieved by the '806 patent. Finally, the Defendants produced no evidence at trial that they complied with their duty to seek legal advice on the infringement issue before commencing use of their guard bed. This evidence (and lack thereof) is alone sufficient to support the jury's finding that the Defendants willfully infringed the '806 patent, regardless of the Defendants' protests that they had no intention to infringe. *See Kloster Speedsteel AB v. Crucible, Inc.*, 793 F.2d 1565, 1579 (Fed.Cir.), *modified in part*, 231 U.S.P.Q. 160 (Fed.Cir.1986), *cert. denied*, 479 U.S. 1034, 107 S.Ct. 882, 93 L.Ed.2d 836 (1987) (jury entitled to draw ad-

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[1] As both parties note, the issue of whether or not the doctrine of equivalents is properly an issue for the jury or for the Court is currently before the *en banc* Federal Circuit. *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 1993 WL 502162, Appeal No. 93-1088 (Fed.Cir.).

verse inferences from defendant's refusal to produce legal opinions); *L.A. Gear, Inc. v. Thom McAn Shoe Co.*, 988 F.2d 1117, 1126 (Fed.Cir.), *cert. denied*, —— U.S. ——, 114 S.Ct. 291, 126 L.Ed.2d 240 (1993) (same).

C. Validity

A patent is presumed valid. 35 U.S.C. § 282. Nonetheless, the Defendants argue that the jury's findings on the issues of obviousness, best mode, and inventorship were not supported by substantial evidence. With regard to proof of these validity facts, of course, the Defendants' bore the burden at trial of establishing their existence by clear and convincing evidence. *L.A. Gear*, 988 F.2d at 1123. In light of the evidence adduced at trial, the Defendants' request for judgment on these issues is absurd.

Defendants rely primarily on the "Hingorani reference" to support their claim that the subject matter of the '806 patent was obvious in light of the prior art. But the patent examiner considered this very reference before awarding the '806 patent, and evidence of prior art that is cumulative of that considered by the examiner has little probative weight in overcoming the presumption of validity. *See Windsurfing Int'l v. AMF, Inc.*, 782 F.2d 995, 998 (Fed.Cir.), *cert. denied*, 477 U.S. 905, 106 S.Ct. 3275, 91 L.Ed.2d 565 (1986). Furthermore, the evidence easily supports the examiner's implicit conclusion that this reference did not render the claims of the '806 patent obvious. The Hingorani reference described a process which: (1) used a gel-type resin, as opposed to the '806 patent's macroreticulated resin; and (2) accomplished the desired result at a rate thousands of times slower than that achieved by the '806 patent. Hence, the jury's conclusion—that the substantially different and more efficient '806 patent was not obvious to one skilled in the art—is far from clearly erroneous.

The Defendants' also presented evidence of the patent's "subjective obviousness" to the inventor. This, of course, is direct evidence of nothing. *See Ryko Mfg. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed.Cir.1991) (test is not subjective obviousness to inventor, but objective obviousness to artisan).

Finally, the Court properly excluded evidence of preliminary reexamination findings by the patent office as having little or no probative value, and as being overly prejudicial. The Patent Office grants 86% of all requests for reexamination, but only 12% of these grants result in refusals to find patentable claims. *Output Tech. Corp. v. Dataproducts Corp.*, 22 U.S.P.Q.2D 1072, 1074, 1991 WL 332547 (W.D.Wash.1991). Moreover, the evidence before the Patent Office on reexamination is entirely cumulative of that put before the jury at trial.

The jury was also more than justified in rejecting the Defendants' contentions that the inventor of the '806 patent failed to disclose his "best mode" of practicing the invention, or the existence of "co-inventors". The Defendants' best mode argument is largely founded on an incorrect proposition of law, as discussed in this Court's prior order on the Defendants' motion for summary judgment. The inventorship case evinces only desperation. Accordingly, the Defendants' utterly failed to carry their burden of proving the '806 patent invalid.

D. Conclusion

The evidence more than sufficiently supported the verdict of the jury. To the extent relevant findings were within the Court's sole province, the Court completely concurs with the jury's findings and the conclusions they implicate. Therefore, the Defendants' motion for judgment as a matter of law is DENIED.

III. Inequitable Conduct

Defendants also move for judgment on the grounds that the '806 patent is unenforceable due to the inventor's

alleged inequitable conduct in prosecuting the patent. Specifically, the Defendants claim that Celanese violated its duty of candor to the Patent Office by failing to disclose known prior art—referred to at trial as the "Leach Patent" and the "Brittish Application"—and by failing to fairly conduct and disclose experiments which Celanese relied upon to distinguish its invention from the prior art.

A party asserting the unenforceability of a patent based on inequitable conduct must prove by clear and convincing evidence that the applicant both (1) failed to disclose material information to the Patent Office, and (2) thereby intended to deceive the Patent Office. *Speciality Composites v. Cabot Corp.*, 845 F.2d 981, 991 (Fed. Cir.1988); *FMC Corp. v. Manitowoc Co.*, 835 F.2d 1411, 1415 (Fed.Cir.1987). With respect to the prior art references, the Defendants attempted to establish both elements of this defense with unrebutted evidence that: (1) both the inventor and prosecutor of the '806 patent learned of the Leach Patent and the Brittish Application during the prosecution of the '806 patent; (2) they both knew that these references were material to the patentability of their claims; and (3) they nonetheless deliberately chose not to disclose these references to the patent examiner.

However, the evidence also clearly established that these papers were less material than, or at most cumulative of, the prior art references which Celanese had already provided to the Patent Office. A patent applicant has no obligation to disclose an otherwise material reference if the reference is cumulative or less material than those already before the examiner. *Halliburton Co. v. Schlumberger Technology Corp.*, 925 F.2d 1435, 1440 (Fed.Cir.1991). Therefore, Celanese's failure to cite these references did not amount to inequitable conduct. *See Rolls-Royce, Ltd. v. GTE Valeron Corp.*, 800 F.2d 1101, 1107 (Fed.Cir.1986).

Defendants' arguments as to the experimental data relied upon by Celanese are equally specious. The inventor's highly credible testimony established that the examples were transcribed from his notebook, where he had recorded the results of experiments conducted in the normal course of determining the advantages of his invention. Even if the comparative data given the Patent Office could have been more complete, the Court finds the evidence devoid of proof of an intent to deceive. Accordingly, the Court is far from convinced that Celanese engaged in inequitable conduct in obtaining the '806 patent, and the Defendants' motion for judgment on this basis is DENIED.

IV. Enhanced Damages and Attorney's Fees

Based on the jury's finding of willfulness, Celanese asks the Court to treble the jury's award pursuant to 35 U.S.C. § 284. While the jury's finding permits the Court to make such an award, the decision whether to enhance, and to what degree, is vested in the sound discretion of the Court. *Read Corp. v. Portec, Inc.*, 970 F.2d 816, 826 (Fed.Cir.1992). The decision is guided by factors which overlap those governing the willfulness finding, including: (1) whether the infringer deliberately copied the idea in the patent; (2) whether the infringer investigated the scope of the patent and acted on a good-faith belief that it was not infringing a valid patent; and (3) the infringer's behavior as a party to the litigation. *Bott v. Four Star Corp.*, 807 F.2d 1567, 1572 (Fed.Cir. 1986). Additional factors the Court might consider are: (4) the defendant's financial resources; (5) closeness of the case; (6) duration of the defendant's conduct; (7) remedial action by the defendant; (8) defendant's motivation; and (9) whether the defendant attempted to conceal its misconduct. *Read*, 970 F.2d at 827.

Initially, the Court notes that both the preparation and presentation of this case by trial counsel for all parties manifested the highest standards of professionalism and

talent. Indeed, the Court is unfamiliar with attorneys who could have presented the party's respective positions more persuasively. Accordingly, the Court's opinion as to enhancement should by no means be read as a criticism of the conduct of any trial counsel. Moreover, by this opinion the Court in no way wishes to impugn the subjective conviction of any of the Defendants' agents as to the merits of their case. Rather, the Court's analysis of the enhancement factors focuses solely on the objective reasonableness of those convictions, and on the objective propriety of the Defendants' actions in light of the controlling patent law.

With that caveat in mind, many of the *Bott* and *Read* factors favor enhancement. As discussed above, the evidence at trial clearly established that the Defendants deliberately based their infringing process on the ideas embodied in the '806 patent. By its finding of willfulness, the jury implicitly rejected the Defendants' contention that they acted in good faith in using the infringing process, and the Court agrees. Rather, the Defendants blatantly attempted to avoid an arguably literal interpretation of one relatively unimportant limitation of the '806 patent, with no concern for the fact that their process was clearly the legal equivalent of the invention claimed by the patent. Furthermore, the Defendants presented no evidence that, prior to implementing the accused process, they had sought or obtained the advise of counsel as to whether the process would infringe this patent. Also, while the Defendants claim to have ceased using the infringing process, they attempted to conceal this fact from discovery, and evidence suggests that they have simply shifted their efforts from directly infringing the patent to inducing infringement at a customer's facility. Finally, while the Defendants presented a relatively strong case with regard to the issues of obviousness and claim interpretation, they also pursued numerous defenses which could be generously described as weak.

On the other hand, there are degrees of willfulness, and the willfulness issue certainly presented the closest question at trial. Although the jury found the Defendants' efforts to avoid the patent to be more correctly characterized as an exercise in splitting hairs than as a good-faith effort to meet their duty not to infringe, the Defendants' choice to use the Purolite resin was nonetheless clearly based on *some* argument that this resin's properties fell outside one literal interpretation of an admittedly inexplicit limitation of the '806 claims.

Moreover, the Court is of the opinion that, were it not for the doctrine of equivalents, even the infringement issue would have presented a very close case. This is significant because the doctrine itself defines the very gray boundary between permissible and infringing behavior, in an attempt to resolve the tension between the competing policies of patent protection and innovative competition. The doctrine prevents potential infringers, such as the Defendants here, from freely appropriating patented ideas through hypertechnical interpretations of the patented claims. It conflicts, however, with the policies that a patent should precisely define what is claimed, *see Charles Greiner & Co. v. Mari-Med Mfg., Inc.*, 962 F.2d 1031, 1036 (Fed.Cir.1992), and that competitors should be encouraged to "design around" a patent, *see Westvaco Corp. v. International Paper Co.*, 991 F.2d 735, 745 (Fed.Cir. 1993). Accordingly, the Court is of the opinion that maximum punitive damages are less appropriate when a finding of willfulness is largely grounded in the doctrine of equivalents. To find otherwise would be to unjustly reward patentees for their lack of clarity and completeness in drafting their patent.

For these reasons, the Court GRANTS the motion for enhancement to the extent that the damage award should be enhanced by 100%. This figure is calculated to adequately deter infringement of the type at issue in this case, and to attempt to insure that the infringers do not

profit from their activities at the considerable expense and inconvenience of the patentee, while acknowledging that this case does not present the extreme circumstances of the most egregious types of patent piracy which would warrant treble damages. Moreover, the Court does not find the facts of the case to be so extraordinary as to warrant the award of both an enhancement and attorney's fees; therefore, Celanese's motion for attorney's fees is DENIED.

V. Permanent Injunction

Celanese asks for a permanent injunction against infringement of the '806 patent by the Defendants. Once a patentee has established infringement of a valid patent, the Court may, in its discretion, enjoin further violation of the patent by the infringer. *W.L. Gore & Assoc. v. Garlock, Inc.*, 842 F.2d 1275, 1281 (Fed.Cir.1988). Such relief is generally granted as a matter of course, and should only be denied in the face of "very persuasive [evidence] that further infringement will not take place." *Id.* at 1281-82.

Defendants do not contest the general propriety of an injunction, nor do they make any representations that they would be disinclined to use the infringing guard bed in the future. However, they first ask that the language of the injunction track the language of the '806 patent, beyond the language proposed by Celanese, by including the limitation that infringing resins be "stable in the organic medium." As the Defendants have hotly and unsuccessfully contested the definition of this term, the Court has some trepidation that the Defendants propose this addition solely as an excuse to buttress the possibility of claiming, at some point in the future, the benefit of some supposed ambiguity in the injunction. The Court is confident, however, that other language in the Order clearly indicates—and this Court will not hesitate to so hold—that the Defendants will be in contempt of the Order if they attempt to practice the processes claimed in the '806 patent with any "colorable variation" of Purolite C-145.

Accordingly, the Court will sustain the Defendants' objection as to this language. Otherwise, Plaintiff's motion for injunctive relief is GRANTED.

Defendant's also ask for a stay of the injunction pending final disposition of both this case and the pending reexamination proceeding. To qualify for a stay of injunctive relief pending appeal, a party should show: (1) a strong likelihood of success on the merits; (2) irreparable injury to the movant; (3) the lack of substantial injury to the non-movant; and (4) that the public interest favors a stay. *Standard Havens Prod. v. Gencor Indus.*, 897 F.2d 511, 512 (Fed.Cir.1990).

Rather than attempting to meet this test, however, the Defendants merely point out the pendency of reexamination and cite a non-precedential case which suggests the propriety of a stay in these circumstances. Moreover, the evidence presented at trial does not support a stay. As discussed above, it appears highly unlikely that the '806 patent will be ultimately found invalid, either on appeal or reexamination. Furthermore, the Defendants claim that they no longer use the infringing process; indeed, at trial they attempted to minimize the beneficial aspects of the process. Therefore, it would be disingenous for the Defendants to now claim that an injunction against use of the process would irreparably harm them. Accordingly, the motion for stay of the injunction is DENIED.

Finally, the Defendants ask that the injunction contain language of self-termination in the event of reversal on appeal or a finding of unpatentability in the reexamination proceeding. This request, however, posits itself to speculative circumstances which can be easily addressed, as a matter of law, on their occurrence. Therefore, the request is DENIED.

VI. Pre-Judgment Interest and Costs

Celanese requests pre-judgment interest based on the average prime rate of 6% for the relevant period, com-

pounded monthly, based on an assumption that royalty payments would have been made quarterly. The Defendants suggest that the interest rate should be based on the average three-month United States Treasury Bill rate of 3.21%, compounded quarterly.

The Court has substantial discretion in determining the pre-judgment interest rate in patent infringement cases. *Datascope Corp. v. SMEC, Inc.*, 879 F.2d 820, 829 (Fed. Cir.1989), *cert. denied*, 493 U.S. 1024, 110 S.Ct. 729, 107 L.Ed.2d 747 (1990). In making this determination, the Court is mindful that the purpose of pre-judgment interest is solely to compensate the patentee for the lost use of the royalty income he should have been paid. *Bio-Rad Laboratories v. Nicolet Instrument Corp.*, 807 F.2d 964, 969 (Fed.Cir.1986), *cert. denied*, 482 U.S. 915, 107 S.Ct. 3187, 96 L.Ed.2d 675 (1987). Accordingly, the Court finds the T-bill rate to be the appropriate standard, and the Court adopts the Defendants' calculations for pre-judgment interest through the end of 1993—$151,526.00.

Defendants also argue that pre-judgment interest should only be awarded through January 21, 1991—the date of the verdict—on the grounds that Celanese's right to recovery was established on that date and hence the appropriate relief after that date is post-judgment interest. Given the Court's determination that the T-bill rate is the appropriate standard for pre-judgment interest in this case, however, this distinction makes little, if any, real difference in total liability. *See* 28 U.S.C. 1961(a) (post-judgment interest established by the 52-week T-bill rate). Moreover, the jury's verdict did not entirely dispose of the issues in this case, as the outcome of the Defendants' equitable defense has not been decided until today. Therefore, before today Celanese's right to recovery had not been fully established. Accordingly, additional interest through today's date will be awarded at the rate of 3.25%, uncompounded, for a total prejudg-

ment interest award of ($151,526 + ((5,591,541.82 + 151,526.00) × .0325 × 67/365)) = $185,787.72.

Celanese's bill of costs is also allowed, in the amount of $24,801.20.

* * * *

In sum, the Defendants' motions for judgment are DENIED. Plaintiff's motion for enhanced damages is GRANTED to the extent that the damages award will be doubled. Plaintiff's motion for attorney's fees is DENIED. Plaintiff's motion for a permanent injunction is GRANTED. Pre-judgment interest is AWARDED in the amount of $185,787.72, as is Plaintiff's bill of costs in the amount of $24,801.20.

If the parties can present to the Court compelling and relevant new evidence or legal authority affecting these issues, which they could not through the exercise of due diligence have presented on original submission of these motions, the parties are, of course, invited to bring these to the Court's attention. Otherwise, the parties are ORDERED to file no further pleadings in this Court, including motions to reconsider or the like. Instead, the parties are instructed to seek any further relief to which they feel themselves entitled in the United States Court of Appeals, as may be appropriate.

IT IS SO ORDERED.

No. 95-2033 (2)

Supreme Court, U.S.
FILED
JUL 18 1996
CLERK

IN THE
Supreme Court of the United States
OCTOBER TERM, 1996

BP CHEMICALS LIMITED and
STERLING CHEMICALS, INC.,
Petitioners,

v.

HOECHST CELANESE CORPORATION,
Respondent.

On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

---

BRIEF IN OPPOSITION

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QUESTIONS PRESENTED

1) Where the only disputed claim limitation in the '806 patent required a "macroreticulated strong-acid cation exchange resin" that was "stable" and where the term "stable" was defined in the '806 patent specification as one that will not "change more than about 50 percent of its dry physical dimension upon being exposed to the organic medium," did the court of appeals, the district court and the jury all correctly conclude as a matter of law that the term "dimension" in the specification signified a linear measurement (*e.g.*, diameter) rather than volume (*i.e.*, a product of three dimensions) so that the petitioners' use of a resin which changed less than 50% in linear dimension in acetic acid literally infringed the '806 patent?

2) Should this Court decline to reach or address the alternative question presented concerning infringement under the doctrine of equivalents where (a) the judgment of infringement is fully supported by the lower courts' correct determination that the petitioners literally infringed the patent-in-suit, (b) where the requested relief in the petition, even if granted, would still necessitate a remand for a new trial on the issue of literal infringement, and (c) where the petitioners were correctly held by the court of appeals to have waived any objection to sufficiency of the evidence pertaining to the doctrine of equivalents?

LIST OF PARTIES AND RULE 29.6 STATEMENT

The parties to the proceeding in the United States Court of Appeals for the Federal Circuit were petitioners BP Chemicals Limited and Sterling Chemicals, Inc. and respondent Hoechst Celanese Corporation. For purposes of S. Ct. R. 29.6, respondent Hoechst Celanese Corporation states that the following parent and subsidiary (except wholly-owned subsidiaries) companies have issued shares to the public:

Hoechst Celanese Chemical Group, Inc.
Hoechst AG
Copley Pharmaceutical, Inc.
Celanese Canada, Inc.
Celanese Mexicana S.A.

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IN THE

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OCTOBER TERM, 1996

No. 95-2033

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STERLING CHEMICALS, INC.,
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v.

HOECHST CELANESE CORPORATION,
Respondent.

On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

---

BRIEF IN OPPOSITION

Respondent Hoechst Celanese Corporation ("Celanese") respectfully requests that this Court deny the petition for a writ of certiorari seeking review of the Federal Circuit's decision in this case. The Federal Circuit's opinion is reported at 78 F.3d 1575 (Fed. Cir. 1996), and is found at Petitioners' Appendix ("Pet. App.") 1a-17a. The district court's opinion, which was affirmed by the Federal Circuit's opinion at issue, that denied the post-trial motions of BP Chemicals Limited and Sterling Chemicals, Inc. (collectively "petitioners") for judgment as a matter of law ("JMOL") after a jury verdict of willful infringement in favor of Celanese is reported at 846 F. Supp. 542 (S.D. Tex. 1994), and is found at Pet. App. 18a-33a.

STATUTE INVOLVED

Petitioners have asserted that the pertinent statutory provision applicable to this case is 35 U.S.C. § 112, despite their admission that they stipulated before the district court in the pretrial order that the provisions of section 112 were satisfied by the '806 patent. *See* Pet. 5 n.3. In light of that concession by petitioners, Celanese respectfully submits that no statutory provision is implicated by the present petition, which raises a case-specific challenge to the lower courts' correct interpretation of the term "dimension" in the '806 patent specification. In addition, the petition attempts to implicate the viability and applicability of the judicially-created doctrine of equivalents, which is non-statutory and only an alternative basis for the judgment based on petitioners' willful literal infringement in this case.

STATEMENT OF THE CASE

A. The Patent-In-Suit

In 1978, a Celanese scientist, Charles B. Hilton, discovered a highly effective method for quickly removing iodide ions from non-aqueous organic liquids by passing the organic liquid over a silver-charged, macroreticulated, strong acid, cation exchange resin. By reducing the iodide level in acetic acid to less than one part per *billion* (about one droplet in a tank truck of acetic acid), the claimed process prevents the iodide from later "poisoning" the catalyst used when the acetic acid is converted to vinyl acetate in a "downstream" process.

In practicing the claimed method, suitable resin beads are placed in a vessel known as a "guard bed." As the acetic acid moves through the guard bed, a chemical reaction between silver on the resin surface and iodide in the acetic acid traps the iodide on the resin. Celanese filed a patent application claiming Dr. Hilton's invention in March 1985. Two months later, Celanese installed the guard bed in its Clear Lake, Texas plant.

The '806 patent issued on October 7, 1986. As originally filed in the PTO, the broadest claim in Celanese's application read as follows:

> A method for removing iodide compounds from a non-aqueous organic medium comprising contacting the medium containing said iodide compounds with an ion exchange resin characterized in that the resin is a macroreticulated strong-acid cation exchange resin which is stable in the organic medium and has at least one percent of its active sites converted to the silver or mercury form.

The patent examiner allowed that as claim 1 without amendment. The two claims at issue during trial, claims 2 and 6, include all of the same limitations and are thus dependent from claim 1.[1]

The '806 patent teaches that resin beads for use in the claimed method must be "macroreticulated" or "macroreticular," *i.e.*, porous. Macroreticulated resins are synonymously known as "macroporous" resins and are made with a "porogen" which allows pores (*i.e.*, holes) to form in the surface of the resin beads which increases the net surface area. At the time of the '806 patent application, the only other type of ion exchange resin was known as a gel resin, made without a porogen and having no pores. Silver-charged "gel" resins had been used to remove iodide from aqueous media prior to Dr. Hilton's invention, but processes using gel resins were too slow for practical application with acetic acid.

The '806 patent discloses that a preferred ion-exchange resin for use in the practice of the invention is "a macroreticulated resin comprised of a sulfonated copolymer of

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[1] In a reexamination proceeding (*see* 35 U.S.C. §§ 302-05) initiated by BP after this lawsuit was filed, the '806 claims were reaffirmed as patentable by the United States Patent and Trademark Office ("PTO") after the trial concluded, but before the appeal to the Federal Circuit. On July 11, 1996, the '806 claims were again upheld without amendment by the PTO in two additional reexamination proceedings.

styrene and divinylbenzene." The patent then discloses that the "most preferred" resin is manufactured by Rohm & Haas and is available under the trademark Amberlyst® 15. The '806 specification includes a table with information about Amberlyst® 15 published by Rohm & Haas, including a representative distribution of the diameter (mesh size) of the dry resin beads and the percent swelling from the dry state to the solvated state in a variety of media, such as hexane, ethyl acetate, and water.

The '806 patent further explains that most macroreticulated resins are inherently "stable" in non-aqueous liquids.

> A final characteristic of the resin when used to remove iodide compounds from non-aqueous, organic media, and one that is inherent in most ion exchange resins meeting the foregoing requirements, especially when the resin is specifically indicated to be designated for non-aqueous applications, is that the resin is stable in the organic medium from which the iodide compounds are to be removed. *By the term "stable," it is meant that the resin will not chemically decompose, or change more than about 50 percent of its dry physical dimension upon being exposed to the organic medium containing the iodide compounds.*

(Emphasis added.) Petitioners did not dispute that the resin in their accused process did not chemically decompose upon being exposed to acetic acid. Instead, attempting to take advantage of the absence of an express definition of the term "dimension" in the patent specification, they asserted that the particular resin used in the accused process "change[d] more than about 50% of its dry physical dimension" upon such exposure because its *volume* allegedly increased by more than fifty percent.

B. The Development Of The Infringing Guard Bed System

In 1990, acetic acid manufactured by petitioners caused an unintentional and sudden "deactivation" of the vinyl acetate catalyst used by their main acetic acid customer,

Union Carbide, due to iodide contamination in the acetic acid feed at a level of less than 200 parts per billion. The "upset" caused by that contamination forced petitioners to take a costly shut down of the 600 million pound per year Sterling plant, and further caused BP to pay a million dollars to Union Carbide to share the $2 million catalyst replacement cost.

Desperate to avoid future costly upsets, BP and Sterling scientists convened a self-described "brainstorming session" in August 1990 to devise a better way to reduce the total iodides in their acetic acid. Petitioners knew of the '806 patent at the time the infringement began. Pet. App. 23a. Petitioners also knew that the process claimed in Celanese's '806 patent would solve the iodide problem because one of the alternatives they considered was resolving the "Amberlyst® 15 patent situation to use it." Moreover, petitioners also realized that following that course of action would "probably require consultation with Hoechst Celanese." However, no such consultation or license with Celanese was ever accomplished.

After considering but rejecting a number of other alternatives, petitioners' scientists decided to use a silver charged guard bed containing a resin called Purolite C-145 in place of the Amberlyst® 15 resin disclosed in the '806 patent. Purolite C-145 resin was described by its manufacturer as a "macroporous" strong-acid cation exchanger resin made of a polymer matrix of sulfonated polystyrene with divinyl benzene, just as preferred in the '806 patent. Despite the manufacturer's classification and in the face of Sterling's admitted pre-trial understanding that the Purolite resin was indeed "macroporous," petitioners still asserted at trial that the resin in their accused process was not "macroreticulated" as used in the '806 patent. In addition, petitioners contended that the Purolite resin "chang[ed] more than about 50% of its dry physical dimension" upon exposure to acetic acid based on their own revisionist characterization of the term "dimension"

as signifying "volume" rather than being a linear measurement.

With those two concocted justifications as their only basis for asserting that they had achieved their alleged "goal" of preventing iodide contamination without infringing any patents, BP and Sterling then loaded the Purolite resin with silver, adopted the other parameters of the process claimed in the '806 patent, and commenced operation of the infringing guard bed. Suspicious that another method for removing iodide from acetic acid was in commercial use in the United States, Celanese analyzed Sterling's acetic acid revealing traces of silver and indicating that Sterling was using the guard bed process covered by Celanese's '806 patent.

On January 5, 1993, Celanese filed suit alleging infringement of the '806 patent against the petitioners in the United States District Court for the Southern District of Texas (Galveston Division) (Kent, J.). Petitioners answered and filed a declaratory judgment counterclaim, alleging that the '806 patent had been inequitably procured, was invalid for multiple reasons, and was not infringed.

C. The District Court And Jury Find Willful Infringement

The case was tried to a jury over a period of seven days. Pet. App. 3a. By the start of trial, the petitioners had conceded that the accused iodide removal process met all but two claim limitations: asserting only that the Purolite resin used in the accused process was neither "macroreticulated" nor "stable" as those terms were used in the '806 patent.

At trial, petitioners attempted to sustain their non-infringement position using tests involving measurements made after the Purolite resin was dried at 105°C under vacuum. As petitioners were well aware, such high temperature functions to artificially "collapse" the pores in

the accused resin and was well above the maximum temperature of 40°C to which resin used in the infringing process was permitted to be exposed under BP's own specification, which cautioned that excessive temperatures could damage the resin. In other words, the material "tested" to support BP's non-infringement case was resin in a form that was "out of specification" and which was never used to remove iodide at the Sterling plant. Based on such unrealistic test results, petitioners argued that the Purolite resin was actually a "gel" that had no pores and whose "porosity depended essentially upon swelling." Not surprisingly, the jury rejected petitioners' assertions.

At the close of Celanese's case, the petitioners moved for directed verdict of no infringement, which was denied. Before the jury was instructed, they renewed their objection to the district court's instructions on the doctrine of equivalents on grounds that the doctrine presented an equitable determination that could only be made by the court.[2] After the jury's verdict, petitioners moved for JMOL, seeking to overturn the jury's conclusions on infringement, willfulness, and validity. In rejecting the petitioners' assertions of error, the district court (Judge Kent) outlined and followed the proper standard of review:

> [A] party must show (1) that reasonable persons, in light of the evidence before them, could not have found the facts necessary to support the jury's verdict; or (2) that the facts properly found cannot in law support that verdict. In reviewing factual findings, the Court must consider all of the evidence, in the light most favorable to the non-movant, drawing reasonable inferences, without simply substituting

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[2] That contention was based on arguments raised by the appellant in a case that was then pending before the en banc Federal Circuit. Subsequently, that position was rejected in *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1520-21 (Fed. Cir. 1995), *cert. granted*, 116 S. Ct. 1014 (No. 95-728) (1996) (hereinafter "*Hilton Davis*").

> its choice for that of the jury between conflicting elements in the evidence. In reviewing the legal conclusions implicit in the verdict, the Court should review *de novo* the legal issues supporting the verdict.

Pet. App. 20a (citations omitted). The district court independently reviewed the evidence and confirmed that the jury's verdict was supported by substantial evidence and in accordance with the proper legal standards. Pet. App. 20a-25a.

1. *Invalidity And Unenforceability*

The jury rejected each of the petitioners' invalidity defenses. Pet. App. 18a. In upholding the jury's validity determinations, Judge Kent sternly noted that "in light of the evidence adduced at trial, Defendants' request for judgment on these issues is absurd." Pet. App. 24a. Petitioners also filed a motion for judgment on the issue of inequitable conduct, which Judge Kent also rejected. Pet. App. 25a-27a. All of those issues were later abandoned on appeal.

2. *Infringement*

In post-trial motions before the district court, the petitioners argued that there was not substantial evidence to support the jury's finding that the Purolite resin used in the accused process was "macroreticulated" and "stable" as required by the '806 patent. Pet. App. 20a. Rejecting petitioners' merely "colorable argument" and "exceedingly dubious" evidence that the Purolite resin is not macroreticulated, Judge Kent held that "[t]he jury properly rejected such an overly strained interpretation of the claims of the '806 patent, as the evidence overwhelmingly supported a contrary conclusion." Pet. App. 20a-21a.

With respect to the term "stable", the district court reviewed the evidence and easily concluded that "substantial evidence supports a conclusion that Purolite C-145

is 'stable' within the literal meaning of the '806 patent." Pet. App. 22a. In reaching that conclusion, the court relied on the fact that construing the patent to have "a limitation of 50% volume swelling would lead to the improbable result that the patent's own 'best mode' resin —Amberlyst 15—is excluded from the scope of the patent." Pet. App. 22a. Thus, the district court affirmed the jury's finding that the '806 patent was literally infringed.

Celanese submitted a proposed jury form that had separate questions on infringement literally and under the doctrine of equivalents. However, the petitioners' proposed form asked only whether there was infringement of particular claims. Judge Kent notified the parties that he would instruct the jury on both infringement issues and also informed them that he would submit petitioners' single infringement question on each asserted claim to the jury. Apart from objections to the jury being instructed on the doctrine of equivalents at all and to certain aspects of that charge, the petitioners did not object to the actual infringement jury question that was submitted to the jury on grounds that it did not sever the literal infringement issue from infringement under the doctrine of equivalents.

The petitioners' JMOL motion again objected to the jury having been given the doctrine of equivalents issue. Consequently, Judge Kent independently reviewed the evidence and entered his own findings on that issue. Pet. App. 22a-23a. After reciting the "function-means-result" test set forth in *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 (1950), he noted that the evidence of the volumetric swelling of the Purolite resin presented "the only reasonably arguable distinction" between the accused process and that described in the '806 patent. Pet. App. 22a. Recognizing that the other limitations were met "just as described in the patent," Judge Kent held:

> Even if Defendants' resin choice did not literally infringe the '806 patent, the Court cannot envision circumstances which would more clearly qualify for the protection of *Graver*: the Defendants' process performs the *identical* function of the '806 patent, to achieve *identical* results, by almost (if not literally) the *identical* means.

Pet. App. 22a-23a (emphasis in original). Accordingly, the district court found "the jury's verdict of infringement to be "overwhelmingly supported by the evidence." Pet. App. 23a. Judge Kent then alternatively and independently entered his own finding of infringement under the doctrine. Pet. App. 23a.

3. *Willful Infringement And Damages*

The jury also found petitioners' infringement to be willful. After rejecting petitioners' challenge to the sufficiency of the evidentiary basis for that determination, Pet. App. 23a-24a, Judge Kent subsequently exercised his discretion to award double damages under 35 U.S.C. § 284 for the willfulness. He specifically agreed with the jury's implicit rejection of petitioners' contention that they acted in good faith. Pet. App. 28a.

In doing so, he cited "Defendants' [blatant attempt] to avoid an arguably literal interpretation of one relatively unimportant limitation of the '806 patent, with no concern for the fact their process was clearly the legal equivalent of the invention claimed by the patent" and petitioners' failure to present any evidence that they had sought or obtained the competent advice of legal counsel prior to commencing their infringing process. Pet. App. 28a (also noting that petitioners "pursued numerous defenses which could be generously described as weak").

As damages for the infringement, the jury awarded Celanese a royalty rate of 0.6 cents per pound of acetic acid produced by the infringing process. Judge Kent

also denied petitioners' request for a 10-fold decrease in damages as an alternative to a new trial. No issues related to damages were raised by either party on appeal.

D. The Federal Circuit's Affirmance

In light of the dubious nature of the petitioners' tests on grossly overheated resin samples, it is little wonder that the jury and the district court did not accept petitioners' assertion that the resin in its accused process was not "macroreticulated" for purposes of avoiding infringement of the '806 patent. On appeal, the petitioners abandoned that position altogether, leaving the only disputed claim limitation before the Federal Circuit as being whether the resin in the accused method was "stable" as required by the '806 patent claims.

Notably, the petitioners did not raise any of the adverse determinations on invalidity or unenforceability on appeal to the Federal Circuit. Thus, even though the jury and district court agreed with Celanese's claim interpretation, the petitioners effectively conceded before the Federal Circuit that there was no arguable basis on which to advance any assertions that the claims at issue were invalid or unenforceable, even when "stable" is interpreted to cover changes of 50% in linear dimension. For that reason, it is clear that petitioners' artificial and unsupported interpretation of "dimension" is not required by the prior art or by the understanding of those of ordinary skill in the relevant art. Instead, it was simply a *post hoc*, litigation-inspired "word game" created by petitioners in hopes of avoiding liability for a clear case of literal infringement.

1. The Meaning Of The Term "Stable"

The appeal in this case was argued and decided after the Federal Circuit's *in banc* decision in *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir.

1995), *aff'd*, 116 S. Ct. 1384 (1996), but before this Court's affirmance. In *Markman*, the Federal Circuit pronounced that claim interpretation is a matter of law for the court which is to be reviewed *de novo* on appeal without deference to the trier of fact. *See* Pet. App. 4a. In this case, the Federal Circuit recognized that the dispute over the interpretation of the term "dimension" was dispositive of the issue of infringement, which turned on the scope and meaning of the term "stable" in the claims at issue. Pet. App. 4a. Thus, the Federal Circuit properly undertook a *de novo* determination of the meaning of that term as used in the '806 patent. *Id.*

The Federal Circuit properly began its analysis from the premise that "[a] technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning." Pet. App. 4a (citing *ZMI Corp. v. Cardiac Resuscitator Corp.*, 844 F.2d 1576, 1579 (Fed. Cir. 1988), and *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1387 (Fed. Cir. 1992)). As the court properly recognized, the meaning of the disputed term "stable" depended on the meaning of "dry physical dimension" as contained in the specification's definition of "stable." Pet. App. 5a.

The Federal Circuit noted that a court is to consider extrinsic evidence (including expert testimony) only for the purpose of explaining the technology and technical terms found in the patent. Pet. App. 5a (citing *Markman*, 52 F.3d at 931). The Federal Circuit cited the testimony of Celanese's technical expert that "there is no such thing as volume dimension." Pet. App. 6a. The court of appeals also quoted contrary testimony from petitioners' expert expressing his personal belief that "stable" refers to volume because it is difficult to measure the diameter of

a single resin bead and because the patent distinguishes between macroreticulated resins and gel resins. *Id.* Stating that the dictionary definitions cited by each side were not by themselves dispositive of the disputed meaning, the Federal Circuit noted that general dictionary definitions are secondary to the specific meaning of a technical term as it is used and understood in a particular technical field. Pet. App. 7a.

In that light, the Federal Circuit characterized the testimony of Dr. Hilton, the inventor, as "read[ing] as that of an expert in the field." Pet. App. 8a. The court favorably quoted his testimony that "dimension is a distance. A dimension is not a volume." Pet. App. 7a. As part of its *de novo* determination, the Federal Circuit also relied on portions of Dr. Hilton's cross-examination testimony beyond that which had been directly quoted in the parties' briefs.

> Q: When did you first form a view that dimension means something other than volume dimension, dimension in this definition of stable?
>
> A: I have never thought of volume as being a dimension. . . . [V]olume is not a dimension. . . . Dimension is a distance.
>
> Q: You've never heard the term "volume" used as a dimension?
>
> A: No.
>
> Q: Yet you consider the volume expansion in order to design a guard bed, do you not?
>
> A: Yes, you do.
>
> Q: How many dimensions does volume have?
>
> A: Volume has three dimensions.

Pet. App. 8a. The Federal Circuit noted the district court's view that Dr. Hilton was "highly credible." Pet. App. 8a; Pet. App. 27a. Contrary to the central mistaken premise of the petition, the Federal Circuit did not find

his testimony dispositive, stating instead that it "treated Dr. Hilton's testimony as cumulative to the other evidence, and as enlarging our understanding of the technology and the usage of the disputed terms." Pet. App. 9a.

The Federal Circuit further noted that the '806 patent specification shows the resin characteristic of mesh size of the dry resin, a linear measurement based on diameter. Pet. App. 9a. Because Celanese's preferred resin was shown to swell by more than 50% in volume in acetic acid, the district court had observed that petitioners' interpretation of "stable" would exclude Celanese's preferred embodiment from the literal scope of the claims. Pet. App. 9a; Pet. App. 22a. The Federal Circuit agreed with that analysis, holding it "unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way." Pet. App. 9a (citing *Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1550 (Fed. Cir. 1996) (a claim interpretation that would exclude the inventor's device is rarely the correct interpretation)).

After making its own *de novo* consideration of the '806 patent claims and specification, the parties' evidence, and the parties' assertions, the Federal Circuit agreed with the district court and the jury that "dimension" was properly interpreted as being a linear measurement.

> We find that *the more reasonable explanation is that volume has three dimensions,* and we give weight to the argument that on the BP definition the Celanese preferred embodiment would not be within the claims of the Celanese patent. Thus we conclude that "dry physical dimension" as used in the specification means linear dimension. On this definition of dimension, and defining "stable" accordingly, the claims read literally on the BP process.

Pet. App. 10a-11a (emphasis added). Finally, the Federal Circuit rejected petitioners' claim to be entitled to a

presumption of noninfringement because they were allegedly practicing a process that was separately patented. Pet. App. 13a-14a.

2. ***The Doctrine Of Equivalents***

Having affirmed the district court's judgment on grounds of literal infringement, the issue of infringement under the doctrine of equivalents was no longer necessary to the infringement judgment. Nevertheless, the Federal Circuit went on to address how the issue of infringement under the doctrine had been presented to the jury "in the interest of complete review." Pet. App. 10a.

First, the Federal Circuit rejected petitioners' contention that the doctrine of equivalents issue was an equitable issue which should not have been submitted to the jury. Pet. App. 10a. Next, the Federal Circuit dismissed petitioners' objections to the manner in which the case was submitted to jury by holding that petitioners "by [their] acquiescence in and indeed proposal of the verdict form waived objection to the verdict form" and further holding there was no error in the jury instructions. Pet. App. 11a. The Federal Circuit then rejected petitioners' argument that Celanese did not present sufficient evidence of equivalency on grounds that the petitioners did not preserve that issue before the case went to the jury by filing a properly made motion for directed verdict at the close of all the evidence. Pet. App. 11a-12a.

Petitioners' multiple procedural attacks on the manner in which the doctrine of equivalents was given to the jury were clearly designed to avoid the district court's substantive conclusions that infringement was "overwhelmingly supported by the evidence." Pet. App. 23a. As noted, the district court made its own independent review of the evidence and made clear that it "cannot envision circumstances which would more clearly qualify for the protection" of the doctrine. Pet. App. 22a. Having

reviewed the entirety of the proceeding, the Federal Circuit found no basis for reversing or granting a new trial on the issue of infringement.[3] Pet. App. 13a.

REASONS FOR DENYING THE WRIT

There is no reason for this Court to grant certiorari to review the propriety of the Federal Circuit's decision in this case, which only concerns the proper meaning of the phrase "dry physical dimension" as found in the specification's definition of the single disputed claim term "stable" in the '806 patent. On its face, the petition complains only of the case-specific finding that the petitioners infringed Celanese's '806 patent—a result which was identically and independently reached by the jury, by the district court, and by the Federal Circuit. Because every decisionmaker that has considered this case has reached the same result, BP's petition clearly does not present either a difficult or controversial issue worthy of this Court's attention.

Nevertheless, petitioners are asking this Court to grant certiorari in order to rule as a matter of law that the term "stable" must be construed in accordance with the same meaning of "dimension" that the petitioners have failed to convince the court of appeals, the district court or the jury was correct. The thrice-reached conclusion that "dimension" is properly construed in accordance with its ordinary meaning of being a one-dimensional "length" rather than three-dimensional "volume" is eminently reasonable. More importantly, it is entirely correct. Simply put, "volume" is not a dimension, it is the product of three dimensions. Without doubt, petitioners' artificial interpretation of the term "dimension" as somehow signifying "volume" was advanced solely for purposes of this

[3] The Federal Circuit also affirmed the jury's finding of willful infringement and the district court's decision to award double damages under 35 U.S.C. § 286. Pet. App. 14a-17a. No issues related to those issues are raised by the petition.

litigation and has been properly rejected throughout this case.

No possible justification has been shown for this Court to revisit that single claim interpretation issue in this case on a petition for certiorari. Moreover, the finding of literal infringement compelled by that correct claim construction renders the second question presented regarding the doctrine of equivalents irrelevant. In light of the finding of literal infringement, any pronouncement by this Court concerning the doctrine of equivalents in this case or in *Hilton Davis* cannot alter the judgment of infringement in this case. Thus, the petitioners' alternative and unsupported suggestion that the denial of this petition be delayed until after this Court renders a decision in *Hilton Davis* should be rejected as nothing more than a baseless attempt to postpone a final and overdue conclusion to this case.

I. PETITIONERS' FIRST QUESTION PRESENTED WAS NOT ADDRESSED BELOW AND HAS NO BASIS IN THE RECORD

The first question posed by the petition is directed to whether the Federal Circuit somehow violated "the fair notice function" of section 35 U.S.C. § 112 when it interpreted the terms of the '806 patent after considering extrinsic evidence (such as the expert testimony presented by both sides). Petitioners concede that courts often must examine extrinsic evidence—including expert testimony, dictionaries, and scientific articles—in order to determine the proper meaning of technical terms and language in a patent document. Pet. 14-15. Because that is all that occurred in this case, the entire premise of petitioner's first question is without basis in the record.

As petitioners concede before this Court, they stipulated before trial that section 112 was complied with in this case (*see* Pet. 5 n.3), so Celanese's compliance with the requirements of section 112 was not raised in or resolved by the district court or by the jury. Petitioners' feeble

suggestion to this Court that their stipulation should be excused because it was based on their own unilateral interpretation of the '806 patent is patently ridiculous. A petition for certiorari is not the proper vehicle by which an unsuccessful litigant may obtain relief from a clear stipulation or attempt to raise new issues where its arguments presented below have been soundly and repeatedly rejected.[4] By requesting this Court to consider a new issue in the first instance on a petition for certiorari, petitioners' first question can be declined on that basis without more.

Moreover, petitioners no longer have any basis for asserting that their actions or their interpretation of the '806 patent were reasonable. An alleged infringer may defend against a charge of willful infringement by showing that it had a reasonable basis for proceeding with its infringing activity. *See, e.g., American Med. Sys., Inc. v. Medical Eng. Corp.*, 6 F.3d 1523, 1531 (Fed. Cir. 1993), *cert. denied*, 114 S. Ct. 1647 (1994). In this case, however, the jury, the district court, and the court of appeals have already found that petitioners *did not* have a reasonable basis for believing that they would not be held liable for infringing the '806 patent. Yet petitioners seek to have this Court undo that result by suggesting that a third *de novo* review of the same record will cause this Court to disagree with everything that has occurred to date in this case.

Because no issue regarding willful infringement is raised in the current petition, petitioners' repeated reliance before this Court on their alleged "good faith" in attempting to construe the '806 patent and to avoid infringing has absolutely no basis in law or fact and thus should

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[4] *See, e.g., Delta Airlines, Inc. v. August*, 450 U.S. 346, 362 (1981) ("question presented in petition but not raised in court of appeals is not properly before us"); *Youakim v. Miller*, 425 U.S. 231, 234 (1976) ("ordinarily, this Court does not decide questions not raised or involved in the lower court").

simply be ignored. In practical effect, the jury, the district court, and the court of appeals have agreed that the petitioners did not "inadvertently invade existing patent rights" (Pet. 14), did not "construe the patent claims in good faith" (Pet. 17), and could not have reasonably understood "dimension" as used in the '806 patent to mean "volume" (Pet. 4). In other words, petitioners' proffered view that "dimension" means "volume" now stands as conclusively rejected as unreasonable on the basis of the now-unchallenged finding that petitioners willfully infringed the '806 patent.

II. THE FEDERAL CIRCUIT CORRECTLY INTERPRETED "DIMENSION" AS BEING A LINEAR MEASUREMENT RATHER THAN A VOLUME

The petitioners attempt to portray the present case as presenting a new issue left unaddressed by the decisions of this Court and the Federal Circuit in *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995), *aff'd*, 116 S. Ct. 1384 (1996), which held that claim interpretation is a matter of law to be decided by the court rather than the jury. However, the Federal Circuit decided this case after its own *Markman* decision, and did so with full awareness of its teachings, implications, and requirements. As shown by the face of the Federal Circuit's opinion, that court made a determination of the proper meaning of the disputed claim term, and concluded that the "more reasonable" interpretation is that volume has three dimensions. Pet. App. 9a. In accordance with that conclusion, a "stable" resin for purposes of the '806 patent is one that changes by about 50% or less of its dry physical *linear* dimension upon being exposed to acetic acid.

Viewed in that light, this Court can reject petitioners' attempt to take advantage of the recent observation by the Federal Circuit in *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996), that "[w]here there is an equal choice between a broader and a narrower meaning of a claim . . . we consider the notice

function of the claim to be best served by adopting the narrower meaning." *See* Pet. 11 n.5. Regardless of the correctness of that statement as a maxim of claim construction, it has no applicability to this case. By expressly concluding that Celanese's interpretation is the "more reasonable" one, Pet. App. 9a, the Federal Circuit's analysis and conclusion demonstrates that petitioners' characterization of its interpretation as being "equally plausible" with the one adopted by both lower courts and the jury is baseless.[5]

As properly recognized by the Federal Circuit, terms in patent claims are to be given their ordinary meaning unless it appears that the inventor used them differently. Pet. App. 4a (citing *ZMI Corp.*, 844 F.2d at 1579); *see also Intellicall, Inc.*, 952 F.2d at 1387 ("terms in a claim are given their ordinary meaning to one of skill in the art unless it appears from the patent and file history that the terms were used differently by the inventors"). As noted, the term "dimension" is in the specification's definition of the claim term "stable," but "dimension" itself is not separately defined in the '806 patent. However, the absence of an express or novel definition for "dimension" only means that it should be interpreted as having its ordinary and common meaning.[6] That is exactly what the jury and the lower courts did.

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[5] At Pet. 16 n.7, petitioners criticize the Federal Circuit for "[finding] it necessary to rely on the evidence presented at trial and to credit certain evidence over other evidence." Pet. App. 6a (conceding that the appellate judges were not personally qualified to know all terms related to macroreticulated cation-exchange resin technology). However, this Court recognized that "credibility judgments have to be made about the experts who testify in patent cases" and that "any credibility determinations will be subsumed within the necessary sophisticated analysis of the whole [patent] document." *Markman*, 116 S. Ct. at 1395. Thus, no fault exists in either the Federal Circuit's efforts or analysis in that regard.

[6] For that reason, the assertion at Pet. 17 that the '806 patent is "defective" because it fails to provide an express definition for the term "dimension" is contrary to accepted law. In any event,

There is no legitimate question that the Federal Circuit correctly concluded that "volume" has three dimensions and is not a dimension itself. Pet. App. 9a. Petitioners' assertion that the Federal Circuit's claim interpretation was based on testimony that was not available to the public as to the inventor's alleged intent when describing his invention (Pet. 11) is simply false. As the Federal Circuit explained, Dr. Hilton's testimony was considered by that court in the context of his being an expert in the field, not as providing evidence of a secret meaning of the disputed claim term. Pet. App. 8a. Moreover, that court further stated that his testimony was "cumulative" to the other evidence, and simply served to enlarge their understanding of the technology and the disputed terms. Pet. App. 9a.

Consideration of such testimony is well within a court's discretion when fulfilling its task to interpret the claims of a patent. *See Markman*, 52 F.3d at 980-81. Similarly, Dr. Dasgupta, another expert in the field of ion-exchange resins, testified on that when the term "dimension" was used in patents to describe a spherical resin, the term typically refers to the resin's diameter, in accordance with its ordinary meaning. Dr. Dasgupta further testified that there was no such thing as "volume dimension." Moreover, as explained by Dr. Hilton, "dimension is a distance. A dimension is not a volume." Pet. App. 7a.

Dr. Hilton's trial testimony was not provided to alter the meaning of the terms in the '806 patent, it served to confirm the understanding of those skilled in the art that the disputed term retained its ordinary and common meaning. That testimony was not about his individual views or to an allegedly secret intention, but reflected his knowledge as an expert that no one in the art used the term "dimension" as signifying volume. *See* Pet. App. 8a.

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no invalidity issue regarding whether the '806 patent is "defective" was raised before the Federal Circuit, and no such issue can be raised before this Court.

Thus, petitioners' assertion that the dispute over the meaning of "dimension" turned on extrinsic evidence that would not have been generally available to members of the public attempting to construe the '806 patent is a red herring.

The dictionary leaves no doubt that the term "dimension" signifies a *linear* measure: "measure in one direction; *specif*: one of three coordinates determining a position in space or four coordinates determining a position in space and time." *Webster's Ninth New Collegiate Dictionary*, at 355 (1988). Similarly, the dictionary definition of "volume" confirms that it is the product of three dimensions, not a dimension itself. *Id.* at 1321 ("the amount of space occupied by a three-dimensional figure as measured in cubic units"). Celanese provided such definitions as being illustrative of the ordinary meanings of such terms.

Admittedly, petitioners were able to find one dictionary that included "volume" within its definition of "dimension." *See* Pet. App. 7a (citing *Concise Oxford Dictionary of Current English* at 327 (8th ed. 1990)). The parties' contrasting definitions prompted the Federal Circuit to deem the dictionary evidence as non-dispositive. Pet. App. 7a. However, this Court can take judicial notice that the great weight of authority in common and technical dictionaries confirms that the accepted meaning of "dimension" does not include "volume."[7] More importantly, this Court can also take notice that the most recent edition of the dictionary cited by petitioners no longer includes "volume" within its accepted definition of "dimension." *See Concise Oxford Dictionary of Current English* at 378-79 (9th ed. 1995).

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[7] *See, e.g.*, Fed. R. Evid. 201(f) ("[j]udicial notice may be taken at any stage of the proceeding"); *Nix v. Hedden*, 149 U.S. 304, 306 (1893) (a court is bound to take judicial notice of the ordinary meaning of a word and "upon such question dictionaries are admitted, not as evidence, but only as aids to the memory and understanding of the court").

The disputed phrase in the specification's definition of "stable" requires that the resin in question not "change more than about 50 percent of its *dry* physical dimension upon being exposed to the organic medium." As the Federal Circuit noted, the specification "shows the resin characteristic of mesh size of the dry resin, a linear measure based on diameter." Pet. App. 9a. Petitioners assert that "the Federal Circuit's reliance on the mesh size reference has no support in the record." Pet. 6 n.4. However, the source of the Federal Circuit's reference is the '806 patent specification itself, which is clearly of record and which is required to be read and interpreted by the court with or without supporting testimony of a witness. *See Markman*, 116 S. Ct. at 1394-96; 52 F.3d at 979-80.

Finally, Dr. Hilton's testimony that use of Amberlyst 15 in his preferred embodiment falls within the scope of his patent is not remarkable. As recognized by the Federal Circuit and the district court, it would be a rare patent indeed that did not cover what the inventor believed to be the best way of carrying out the claimed invention. Pet. App. 9a; Pet. App. 22a. In this case, the test data showing that Amberlyst 15 swells more than 50% in volume was submitted by the petitioners. Now, petitioners assert that this Court should ignore that evidence because the tests were run after the time that the '806 patent was filed. Pet. 12 n.6. However, the improbability which both lower courts rejected was that the '806 patent would not have defined useful resins for the claimed process using terms that clearly risked excluding the inventor's preferred embodiment.

Stripped of its implicit and false assumption that "dimension" can be reasonably interpreted as being volume, the premise for the petition vanishes. As found by the jury, the district court, and the Federal Circuit, petitioners' noninfringement position in this case was founded on bogus test results and a linguistic strawman. If willful

infringers are allowed to create unsupported definitions of ordinary words found in patents as a means to avoid literal infringement, then claim interpretation will indeed become an unpredictable game. Because that is exactly what the Federal Circuit and this Court foreclosed in *Markman*, petitioners' attempt to perpetuate its linguistic gamesmanship in this case should be rejected by denying the petition.

III. THE QUESTION PRESENTED AS TO THE DOCTRINE OF EQUIVALENTS COULD NOT ALTER THE JUDGMENT, IS MERITLESS, AND PREMATURE

Because the finding that the '806 patent was literally infringed by the petitioners reached by the jury, the district court, and the Federal Circuit is based on a completely correct claim interpretation, this Court has no reason to reach or even consider the petitioners' second question presented concerning infringement under the doctrine of equivalents. Consideration of the doctrine of equivalents is only reached if a patent is found not to be literally infringed. *See, e.g., Graver Tank*, 339 U.S. at 607-08. Because this Court has been provided no reason to disturb the former determination, it surely has no reason to reach the latter question where a decision on that issue will not alter the judgment of infringement entered in this case.

The sole basis for petitioners' noninfringement position, even under their claim interpretation, was their thoroughly-discredited swelling tests in which the pores in the accused Purolite resin were artificially collapsed by overheating in direct conflict with petitioners' own specification. The district court held that the jury could easily have disregarded that "extremely dubious" evidence. Pet. App. 21a. On appeal, the petitioners removed that evidence from direct review by the Federal Circuit by dropping their contention that the accused resin was not "macro-

reticulated." Pet. App. 3a. Thus, if the present judgment on literal infringement were vacated, Celanese would clearly be entitled to demonstrate in the district court on remand that petitioners' alleged evidentiary basis for asserting that their resin increased 100% in volume had no legitimate basis in fact when the resin was prepared properly for use in the accused or claimed process. Petitioners' use of flawed tests to support their "revisionist" science cannot be allowed to establish noninfringement under any claim interpretation.

Moreover, even if literal infringement were not found on remand under the petitioners' claim interpretation, Celanese would still be entitled to prove that infringement under the doctrine of equivalents is appropriate. In actuality, Celanese has already done so because the district court expressly found that infringement under the doctrine of equivalents was entirely appropriate even if the term "stable" were interpreted as referring to volumetric changes. Pet. App. 22a.

> Alternatively, to the extent that this finding [on the doctrine of equivalents] is within the exclusive province of the Court, the Court independently finds infringement. To hold otherwise would permit Defendants "to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law."

Pet. App. 23a (quoting *Graver Tank & Mfg. Co. v. Linde Air Products*, 339 U.S. 605, 608 (1950) (footnote omitted)). On appeal, the Federal Circuit found no basis for reversing that result or for remanding that issue to the district court for a new trial. Pet. App. 10a-13a.

The district court made its alternative finding under the doctrine of equivalents in recognition that the issue of whether the doctrine of equivalents was an issue for the court or the jury was currently pending before the full

Federal Circuit. Pet. App. 23a n.1. Subsequently, the full Federal Circuit decided in *Hilton Davis* that the issue of infringement under the doctrine of equivalents is properly submitted to the jury as a question of fact. 62 F.3d at 1522. However, whether the issue is ultimately determined by this Court to be an issue for decision by the court or by the jury will not affect the outcome of this case because the jury and the courts have reached the same result on that issue in this case.

On the merits of the doctrine of equivalents issue, petitioners offer no basis for disagreeing with the findings of the jury and the lower courts and they do not directly challenge the Federal Circuit's well-reasoned determinations that petitioners waived or failed to prove their procedural objections. Instead, petitioners apparently hope that this Court will simply abolish the doctrine of equivalents in the *Hilton Davis* case. Because literal infringement exists in that case, that hope is irrelevant to this petition. In any event, any question regarding application of the doctrine of equivalents in this case would be wholly unnecessary at the present time because the issue could still be addressed, if necessary, in a subsequent appeal following the judgment on remand. Thus, the second question presented by the petition is meritless, premature, and cannot be used as a basis either for granting or delaying denial of this petition.

CONCLUSION

The petition for a writ of certiorari should be denied.

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No. 95-2033

IN THE
Supreme Court of the United States
OCTOBER TERM, 1996

BP CHEMICALS LIMITED and
STERLING CHEMICALS, INC.,
Petitioners,
v.
HOECHST CELANESE CORPORATION,
Respondent.

On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

MOTION FOR LEAVE TO FILE A BRIEF AS *AMICUS CURIAE* AND BRIEF OF UNION CARBIDE CORPORATION AS *AMICUS CURIAE* IN SUPPORT OF PETITIONER

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On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

---

MOTION OF UNION CARBIDE CORPORATION FOR LEAVE TO FILE A BRIEF AS *AMICUS CURIAE*

Union Carbide Corporation respectfully moves this Court for permission to file a brief as *amicus curiae* in support of the petition in this case. Pursuant to Supreme Court Rule 37.2, Union Carbide sought the written consent of all parties to the filing of this brief. Petitioners (collectively, "BP") have consented but respondent has not. Accordingly, Union Carbide must file this motion with the Court.

Union Carbide requests leave to file its *amicus* brief to bring to the Court's attention its own experience with respect to the patent-in-suit. This experience should assist the Court in assessing the worthiness of granting

certiorari on the fundamental issue presented in the petition—namely, what evidence a court may consider and how that evidence should be used in deciding the proper construction of patent claims. Resolution of this issue is vital to innovators in the future whether they be Union Carbide, BP, or even respondent.

Union Carbide was involved in the development of guard bed technology to remove iodides from acetic acid used in the production of vinyl acetate, prior to any knowledge that respondent was also developing the same guard bed technology. Union Carbide began use of a guard bed containing "Amberlyst 15" resin before respondent's patent (U.S. Patent No. 4,615,806, or the "'806 patent") issued.[1] Union Carbide was unaware that respondent had applied for the patent. In light of respondent's patent, Union Carbide elected to discontinue use of the Amberlyst 15 guard bed.

Union Carbide worked with BP, its primary acetic acid supplier, to identify alternatives to Amberlyst 15 guard beds. One such alternative was an iodide removal process employing Purolite C-145 resin, which BP invented and patented (U.S. Patent No. 5,003,104). (*See* Pet. App. at 13a.)[2] Only after obtaining an opinion from outside counsel (separate from BP's counsel) did Union Carbide begin using a guard bed containing Purolite C-145 resin. Outside patent counsel carefully considered the entirety of the public record on the patent-in-suit (the claims, specification, and prosecution history) in developing an extensive opinion. Union Carbide therefore believed that the use of Purolite C-145 resin would be a noninfringing alternative to the method claimed in respondent's patent. Union Carbide was also sued by respondent after respond-

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[1] The preferred embodiment in the '806 patent calls for the use of Amberlyst 15 resin.

[2] Purolite C-145 resin was also used by BP to treat acetic acid and was ultimately found to infringe in the present case.

ent prevailed in the district court in this case, but settled before trial.[3]

As the Federal Circuit's decision makes plain, the decisive evidence in support of respondent's interpretation of the relevant claim language was *not* contained in the patent's public record or objective and publicly available extrinsic evidence (*e.g.*, dictionary definitions, learned treatises, and scientific articles) of what the claim terms would mean to one of ordinary skill in the art. All of that was found to be inconclusive. (*See* Pet. App. at 6a-9a.) Rather, the decisive evidence was extrinsic evidence not available to the public—the inventor's own self-serving, litigation-induced testimony of what he subjectively intended the relevant claim language to mean, an intent expressed nowhere in the patent or its prosecution history. (*See id.* at 8a-9a.)

The patent system plays a vital role in the invention of new products and technologies. To engage in successful innovation requires certainty as to the precise scope and meaning of existing patents, as this Court has recognized.[4] The uncertainty engendered by the Federal Circuit's decision hinders legitimate design around efforts by rendering claim interpretation "a guessing game." (Pet. at 14.) Union Carbide's own experience with respect to the patent-in-suit as set forth in the attached brief illustrates why the claim construction approach followed by the Federal Circuit in the present case places a party seeking in good faith to innovate around a patent in a perilous position and also provides a graphic example of the deleterious effects of this approach.

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[3] Under the settlement agreement, Union Carbide will be obligated to make an additional payment to respondent if respondent prevails in the present case such that use of Purolite C-145 is found to infringe the '806 patent.

[4] *See, e.g., Markman* v. *Westview Instruments, Inc.*, 116 S. Ct. 1384, 1396 (1996); *General Elec. Co.* v. *Wabash Appliance Corp.*, 304 U.S. 364, 368-69 (1938).

Union Carbide believes that its brief will assist the Court in its review of the petition, and therefore reqeusts that the Court grant its motion for leave to file its *amicus* brief.

Respectfully submitted,

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July 17, 1996

* Counsel of Record

QUESTION PRESENTED

Amicus will address the following question:

> Whether a court interpreting a technical term in a patent claim departs from the fair notice function of 35 U.S.C. § 112—which requires that a patent contain one or more claims that particularly point out and distinctly claim the invention—when it relies on extrinsic evidence, such as self-serving inventor testimony, that was not available to members of the public attempting in good faith to construe the patent.

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STATUTES

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IN THE

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OCTOBER TERM, 1996

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BP CHEMICALS LIMITED and
STERLING CHEMICALS, INC.,
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v.

HOECHST CELANESE CORPORATION,
Respondent.

On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

---

BRIEF OF UNION CARBIDE CORPORATION AS *AMICUS CURIAE* IN SUPPORT OF PETITIONER

STATEMENT OF INTEREST

Union Carbide Corporation is a multinational producer of chemicals and other products, including vinyl acetate, a chemical made through the catalytic conversion of acetic acid. For a number of years, petitioners (collectively "BP") have been Union Carbide's principal suppliers of acetic acid. Because iodide contamination in acetic acid has the potential for deactivating or "poisoning" vinyl acetate catalyst, for a period of time BP used a guard bed containing Purolite C-145 ion exchange resin beads to treat its acetic acid.

Union Carbide also employed a guard bed at the front end of its vinyl acetate plant to treat the acetic acid that it obtained from BP and other sources. From April 1991

until January 21, 1994 (the date of the jury verdict in the present case), Union Carbide's guard bed contained the same Purolite C-145 resin found to infringe respondent's U.S. Patent No. 4,615,806 (the "'806 patent"). Union Carbide discontinued use of the guard bed upon learning of the verdict.

Two months later, respondent sued Union Carbide for alleged infringement of the same patent.[1] In March 1995, Union Carbide and respondent settled that lawsuit, with payment of a sum for past damages and an agreement that Union Carbide would make an additional payment if respondent prevails in the present litigation such that use of Purolite C-145 is found to infringe the '806 patent. Union Carbide thus has a direct financial interest in the outcome of this case.

In addition, Union Carbide and BP are the participants in a joint venture called American Acetyls, involving a sharing of calculated margins on certain acetic acid and vinyl acetate production. The damages awarded below, however, will be borne by BP rather than Union Carbide in the event the petition is denied.

REASONS FOR GRANTING THE PETITION

This case presents the basic and crucial issue of what evidence a court may consider and how that evidence should be used in deciding the proper construction of patent claims. Proper claim construction is essential to every infringement suit. In addition, certainty and predictability in the method of claim construction are essential to encourage innovation over existing patented inventions and the sharing of new technologies through patent licensing. The Federal Circuit's unprincipled consideration of extrinsic evidence in the decision below and its failure to elucidate and adhere to coherent claim con-

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[1] *Hoechst Celanese Corp.* v. *Union Carbide Corp.*, Civil Action No. G-94-200 (S.D. Tex.) (Kent, J.).

struction guidelines undermine the certainty and predictability necessary to an effective patent system. Where ambiguity exists in claim construction of a patent, the Federal Circuit's decision gives the innovator no ability to rely upon the patent's public record in resolving the ambiguity. Rather, the innovator must either not use the technology or face the perils of litigation.

1. Union Carbide, like BP, was involved in litigation with respondent over the '806 patent, and its situation provides an additional compelling case study which demonstrates why certiorari should be granted.

In the mid-1980s, Union Carbide began relying more on third parties for its supply of acetic acid to make vinyl acetate. Many of these third parties were using new technology to make acetic acid—technology that introduced an iodide contaminant. The iodides were known to shorten the useful life of the catalyst used to convert acetic acid into vinyl acetate, necessitating more frequent and costly changes of catalyst. Union Carbide noted shortened catalyst life when it began using third party acetic acid. Accordingly, Union Carbide undertook an investigation to find a method to remove the iodides from the acetic acid.

Independently of respondent and without knowledge of the work of the '806 patent's inventor (Dr. Hilton), Union Carbide developed a process to remove iodides from acetic acid through the use of a guard bed containing "Amberlyst 15" ion exchange resin. Union Carbide put its guard bed into service before respondent's '806 patent issued in October 1986 and long before Union Carbide became aware of respondent's parallel work and patent.[2]

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[2] Although use of a guard bed may save some catalyst costs, it is in no way critical to the operation of a vinyl acetate plant. In fact, Union Carbide has successfully operated its vinyl acetate plant without a guard bed for two and a half years and at record production rates.

The '806 patent claims protection for "a method for removing iodide compounds from a non-aqueous organic medium . . . with an ion exchange resin . . . which is *stable* in the organic medium . . . " (Pet. App. at 3a, emphasis added.) The patent states that the preferred resin for the process is Amberlyst 15 resin. (Pet. App. at 19a.)

Union Carbide learned of the '806 patent, ironically, during prosecution of its own European patent application covering the same technology.[3] Union Carbide, after study of the '806 patent, elected to take its Amberlyst 15 guard bed out of service.[4] With knowledge of the '806 patent, Union Carbide, alone and jointly with BP, began work to identify noninfringing methods for iodide removal. In consultation with BP, which had become Union Carbide's principal supplier of acetic acid, Union Carbide learned that Purolite C-145 resin was effective in removing iodides from acetic acid. BP obtained a patent on its invention of using Purolite C-145 (U.S. Patent No. 5,003,104). (*See* Pet. App. at 13a.) Union Carbide thus set out to determine whether the use of Purolite C-145 resin in a guard bed would infringe the '806 patent.

The critical claim term in the infringement analysis is the word "stable." The term is not defined in the patent claims, but the specification provides "that the resin will not chemically decompose, or change more than about 50 percent of its dry physical *dimension* upon being exposed to the organic medium containing the iodide compounds." (Pet. App. at 5a, emphasis added.) "Dimension," too, is

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[3] This similar aspect of Union Carbide's U.S. patent application was found unpatentable by the U.S. Patent and Trademark Office ("PTO"). The PTO did not rely upon the '806 patent in finding Union Carbide's invention unpatentable.

[4] Although Union Carbide could be faulted for not removing the Amberlyst 15 guard bed as quickly as possible, it did not contest infringement as to the use of this guard bed when sued by respondent.

not defined anywhere in the patent, but there are references to volume change measurements in the patent which reasonably suggest that "dimension" means "volume," and the practice in the chemical industry (what one of "ordinary skill in the art" would understand) is to measure volume changes in resins upon exposure to a solvent. (*See* Pet. at 4 & n.1.)

To confirm its interpretation of the claim language, Union Carbide, separate from BP, sought and obtained an opinion of outside patent counsel. Outside counsel reviewed the entire public record on the patent (the claims, specification, and prosecution history) and investigated what one of ordinary skill in the art would understand the claim terms to mean. Counsel concluded that "stable" referred to a volumetric change.

Union Carbide's tests of Purolite C-145 determined that it was an "unstable" resin—*i.e.*, it expanded more than 50 percent in volume when exposed to acetic acid. In light of these tests, outside patent counsel rendered an extensive opinion concluding that an iodide removal process employing Purolite C-145 resin does not infringe the '806 patent.[5] Several months later, Union Carbide put its Purolite C-145 guard bed into service.

Union Carbide, like BP, was quite surprised when respondent commenced its infringement suit against BP in January 1993. Based upon its opinion of counsel (which in turn was based upon the '806 patent's public record) and the tests for swelling that it had run on Purolite C-145, Union Carbide independently believed that BP's iodide removal process did not infringe the '806 patent. Accordingly, Union Carbide elected to continue use of the Purolite C-145 guard bed. Nevertheless, in the trial of this suit against BP, respondent advanced the view that the inventor's intent—an intent not expressed in the patent or its prosecution history—was for

[5] Union Carbide produced its opinion of counsel to respondent during respondent's infringement suit against Union Carbide.

the term "dimension" to refer to linear measurement and not volume. Thus, Purolite C-145 resin was a "stable" resin because it expanded less than 50 percent in diameter when exposed to acetic acid, and the Purolite C-145 iodide removal process accordingly infringed the '806 patent.

Respondent pressed its case forward to a trial in January 1994. One of the principal witnesses at trial was the inventor, Dr. Hilton, who testified that he meant "dimension" to refer to a linear measurement—even though he conceded that he always measured resin change in terms of volume, not linearly. (*See* Pet. App. at 22a.) The evidence as a whole, including the extrinsic evidence of the parties' experts and proffered dictionary definitions, was "sharply in conflict," as the Federal Circuit later noted. (Pet. App. at 6a.) However, respondent's interpretation of the disputed claim language (which the Federal Circuit subsequently accepted) brings within the ambit of the '806 patent all known, commercially available resins, thereby rendering superfluous the term "stable"—which is supposed to be a claim limitation, circumscribing the types of resins covered by the patent.[6]

The jury, which had been given the claim construction issue to decide and was not instructed by the court on the proper interpretation of the term "stable," returned a verdict of infringement against BP.[7] Subsequently, the district court denied BP's post-trial motions and entered a judgment awarding substantial damages and injunctive relief against BP. (Pet. App. at 18a *et seq.*) Shortly thereafter, respondent commenced its lawsuit against Union Carbide in the same Galveston, Texas court before the same judge.

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[6] *See, e.g., Unique Concepts, Inc.* v. *Brown*, 939 F.2d 1558, 1563 (Fed. Cir. 1991) (claim language cannot be interpreted to be meaningless).

[7] The day that the jury returned its verdict, Union Carbide took its own Purolite C-145 guard bed out of service.

From a review of the jury's verdict and the district court's post-trial decision in this action, it was apparent that the unprincipled claim construction of the jury and district court would be a formidable obstacle to Union Carbide's noninfringement defense. (The district court was not willing to stay respondent's suit against Union Carbide pending appeal of the judgment in the instant litigation.) In addition, respondent was seeking enormous damages from Union Carbide, substantially greater than the damages that were awarded to respondent in its suit against BP, and at a higher royalty rate.

In light of the multi-million dollar damages judgment rendered against BP, the even greater damages that respondent sought against Union Carbide, and the fact that Union Carbide would be tried before the same court that had upheld the jury verdict in respondent's favor on the same patent, Union Carbide determined that, as a matter of practical business judgment, it could not risk a trial. Respondent thus was able to extract a substantial settlement from Union Carbide—far beyond the actual benefit that Union Carbide believed it obtained from use of the guard bed.

2. The Federal Circuit's subsequent decision affirming the district court's decision has only added to the confusion surrounding the role of extrinsic evidence in claim construction. Following its *in banc* decision in *Markman* v. *Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995), and consistent with this Court's subsequent affirmance of *Markman*, 116 S. Ct. 1384 (1996), the Federal Circuit correctly noted that claim construction is a question of law for the court, which required *de novo* review on appeal. (Pet. App. at 3a-4a.) However, upon review of the record, the Federal Circuit found the evidence inconclusive as to the proper interpretation of "stable" and "dimension" and relied decisively on extrinsic evidence not previously available to the public (the inventor's self-serving testimony). (Pet. App. at 6a-9a.) Indeed, the Federal Circuit candidly acknowledged that the inventor's

testimony "enlarg[ed] our understanding of the technology and *the usage of* the disputed terms." (*Id.* at 9a, emphasis added.)[8] Accordingly, the Federal Circuit found literal infringement and affirmed.

3. Although Union Carbide has made peace with respondent, the foregoing discussion vividly demonstrates the importance of the issue presented for review. Innovators in the future, whether they be Union Carbide, BP, or even respondent, will be faced with interpreting patent claim coverage of others. If the meaning of claims can be influenced by extrinsic evidence not publicly available when the interpretation must be made, the innovator is placed in a perilous position. In instances where the price of misjudging the scope of the patent is exposure to enormous damages, prudent innovators will be reluctant to subject themselves to the risk that non-public extrinsic evidence will later be used to undermine their interpretation of the claims. The *de facto* result will be that the patent may quell innovation far beyond the scope that the PTO intended in granting the patent pursuant to the Constitution and patent laws.

In sum, the patent system plays a vital role in the invention of new products and technologies. To engage in successful innovation requires certainty as to the precise scope and meaning of existing patents, as this Court has recognized. *See, e.g., Markman* v. *Westview Instruments, Inc.*, 116 S. Ct. 1384, 1396 (1996); *General Elec. Co.* v. *Wabash Appliance Corp.*, 304 U.S. 364, 368-69 (1938). The patent system is intended to encourage competitors and others skilled in the relevant art to design around patents, as Union Carbide did here. But the un-

[8] Although the Federal Circuit stated that it "treated Dr. Hilton's testimony as cumulative to the other evidence" (Pet. App. at 9a), a plain reading of the opinion indicates that the inventor's testimony was anything but cumulative; it was the extrinsic evdence that tipped the balance in favor of respondent's claim interpretation and a finding of infringement.

certainty engendered by the Federal Circuit's decision in this action renders claim interpretation "a guessing game" (Pet. at 14) and serves as a powerful disincentive to legitimate design around efforts. By relying decisively upon extrinsic evidence not in the public record to determine the meaning of the key claim language (in this case, the inventor's self-serving trial testimony), the Federal Circuit impermissibly renders parties in BP's and Union Carbide's shoes subject to unreasonable claims by patent owners based on evidence not in a patent's public record, including *post hoc*, litigation-induced testimony. *Cf. General Electric*, 304 U.S. at 369 (commenting that the fair notice provision in the patent code (35 U.S.C. § 112 in the present act) "guard[s] against unreasonable advantages to the patentee and disadvantages to others arising from uncertainty as to their [respective] rights").

Review by this Court is thus essential to restore certainty to patent claims and thereby to ensure the proper balance of interests between patent owners and other inventors in the patent field, which is becoming an increasingly vital component of our nation's businesses.

CONCLUSION

For the foregoing reasons and the reasons stated in BP's petition, the petition for a writ of certiorari should be granted.

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REPLY BRIEF OF PETITIONERS

Contrary to respondent's characterization, BP's petition raises an issue of far broader significance than the meaning of the term "dimension" in the patent under consideration. The petition demonstrates the need for this Court to address a recurring source of significant uncertainty in the patent system—fundamentally inconsistent methods of claim interpretation. After finding that the information in the patent document and all other objective evidence were inconclusive as to the meaning of the patent claim, the Federal Circuit adopted wholesale the inventor's self-serving testimony as to his intended meaning. In doing so, the Federal Circuit undermined this Court's ongoing efforts to ensure predictability and certainty in the patent system, as reflected in its decision in *Markman* v. *Westview Instruments, Inc.*, 116 S. Ct.

1384 (1996), and its grant of certiorari in *Warner-Jenkinson Co.* v. *Hilton Davis Chemical Co.*, No. 95-728 (granted Feb. 26, 1996).[1] Indeed, recent post-*Markman* decisions from the Federal Circuit and district courts reveal ever-widening disagreement and confusion about the appropriateness of using such testimony.

In the recently decided case of *Exxon Chemical Patents, Inc.* v. *Lubrizol Corp.*, 64 F.3d 1553 (Fed. Cir. 1995), *reh'g denied*, 77 F.3d 450 (1996), *cert. denied*, 1996 U.S. LEXIS 4105 (June 24, 1996), for example, the three judges on the panel wrote separate opinions reflecting conflicting views concerning the proper treatment of evidence of the inventor's subjective, intended meaning of the patent claims. The majority refused to construe the claims as intended by the inventor, stating that the patentee cannot "escape from the flaws in its claim drafting." *Id.* at 1561 (Clevenger, J.). The concurring opinion, quite consistent with the Federal Circuit's decision in *Markman* but inconsistent with that court's decision in this case, see Pet. 15-16, elaborated that courts "are not free to read the claims as they might have been drafted, even if as drafted they do not accomplish what the inventor may have intended. . . . There is no room in patent claim interpretation for the equivalent of the *cy pres* doctrine." 64 F.3d at 1563 (Fed. Cir. 1995) (Plager, J., concurring); see *id.* ("The public generally, and in particular, the patentee's competitors, are entitled to clear and specific notice of what the inventor claims as his invention."). The dissenting opinion, by contrast, explicitly relied upon the subjective testimony of the patent practitioner who drafted the patent application relating to his understanding of the standard claim format for the technology at issue. *Id.* at 1567 (Nies, J., dissenting).

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[1] It goes without saying that claim scope is not merely critical to infringement determinations, but is important to all phases of patent litigation, including validity and equivalency issues.

Because of the hopeless lack of clarity within the Federal Circuit,[2] the district courts are badly divided and in need of guidance from this Court. Some district courts have allowed reliance on subjective inventor testimony. See, *e.g.*, *Johns Hopkins Univ.* v. *CellPro*, 894 F. Supp. 819, 827 (D. Del. 1995) (considering the inventor's testimony regarding his intended meaning of the claims and stating that the court's analysis was guided by *Markman*); *Moll* v. *Northern Telecom Inc.*, 1995 U.S. Dist. LEXIS 18314, at *13, *26, 37 U.S.P.Q.2d (BNA) 1839, 1843, 1846 (E.D. Pa. Dec. 8, 1995) (noting the *Markman* "ruling that an inventor's testimony is entitled to 'no deference,'" but relying on a pre-*Markman* case to conclude that "[a] court may utilize an inventor's deposition testimony in determining the meaning of patent claims") (citing *Jonsson* v. *The Stanley Works*, 903 F.2d 812, 820-21 (Fed. Cir. 1990)); *Michaels* v. *Art Betterley Enters., Inc.*, 1995 U.S. Dist. LEXIS 18609, at *40-*41 (W.D.N.Y. Dec. 8, 1995) (unpublished opinion) (relying on the claim construction testimony of the attorney who had drafted the patent application). Other district courts flatly have refused to consider inventor testimony regarding the intended meaning of the claim. See, *e.g.*, *California Medical Prods., Inc.* v. *Technol Medical Prods., Inc.*, 921 F. Supp. 1219, 1235 (D. Del. 1995) (stating that the inventor's testimony on what the claim was intended to cover "is precisely the sort of extrinsic evidence which the *Markman* decision found was not to be considered in construing patent claims"); *Ultradent Prods., Inc.* v. *Life-Like Cosmetics, Inc.*, 924 F. Supp. 1101, 1109 (D. Utah 1996) (refusing to construe claim as applicant intended it to be construed).

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[2] *See generally Judges Speak Out on Perception of CAFC*, 50 Pat. Trademark & Copyright J. (BNA) 412 (Aug. 17, 1995) (noting Judge Michel's observations that the *Markman* ruling left several questions unresolved and that "[i]n leaving those questions unresolved, the Federal Circuit has eschewed its supervisory role of trial judges").

Respondent does not, and indeed cannot, dispute the fundamental importance of the claim interpretation issues raised in the petition. Nor does respondent dispute the pervasive nature of the conflict within the Federal Circuit regarding how courts should treat subjective inventor testimony in construing patent claims. Instead, respondent makes several arguments attempting to demonstrate that the claim interpretation issues are not presented in this case. These arguments are meritless. This case is the appropriate and compelling vehicle for addressing the significant issues raised in the petition.

1. Respondent first argues that the claim interpretation issues relating to the "fair notice" function of 35 U.S.C. § 112 are not presented in this case because petitioners stipulated in the pretrial order that the provisions of section 112 were satisfied. Opp. 17-18. This argument is a red herring. Petitioners are not, as respondent contends, suggesting that their "stipulation should be excused." *Id.* at 18. Consistent with the stipulation, petitioners are not challenging the validity of the patent on the ground that it fails to satisfy section 112.

The question remains, however, how the claims in the patent should be interpreted. Petitioner's position is that the Federal Circuit's reliance on subjective extrinsic evidence to expand the scope of the patent contravenes the "fair notice" principles underlying section 112, which place the burden on patentholders to provide in the patent itself clear notice to the public of the precise nature of their claimed inventions. See Pet. 16. Since the inventor's subjective intent is not available to the public on the face of the patent or in its file history, judicial reliance on it to broaden patent claims undermines the requirement that the patent documents provide fair notice to the public of the scope of the invention. Accordingly, the principles underlying section 112 dictate that when patent documents are susceptible of more than one plausible interpretation, the court should adopt the narrowest inter-

pretation to ensure that good-faith inventors do not inadvertently infringe another's patent. *Athletic Alternatives, Inc.* v. *Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996). Petitioners' stipulation simply has no bearing on these claim interpretation issues, which are squarely presented in this case.[3]

Respondent's reliance upon the stipulation is telling. As the *amicus* brief of Union Carbide demonstrates, the finding of infringement in this case demonstrates plainly how, under the Federal Circuit's approach in this case, patent law is a trap even for the wary, let alone for the unwary. Even when sophisticated analysts devote significant time and resources to attempting in good faith to devise non-infringing solutions, they still can be exposed to enormous risks of litigation and damages based ultimately on a subjective expansion of the meaning of terms that have narrower objective meanings. See Amicus Brief of Union Carbide at 3-7. Given the importance of patent law to the nation's business, this state of affairs is intolerable. What makes it doubly intolerable is that the risks depend completely on the district court in which the patentee chooses to bring the litigation and then the panel of the Federal Circuit that happens to hear the appeal.

2. Respondent next argues that the issues raised in the petition are not properly presented in this case because the Federal Circuit correctly construed the term "dimension" in the patent. Opp. 19-24. Much of respondent's brief merely revisits the expert testimony and dictionary definitions proffered in favor of its interpretation of the term, which the Federal Circuit found to be inconclusive,

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[3] Respondent also suggests that petitioners somehow are foreclosed from asserting that they acted in good faith because the petition does not explicitly challenge the finding of willful infringement. Opp. 18-19. This argument is absurd, however, because petitioners' challenges to the judgment of infringement undermine any basis for the finding of willful infringement.

see Pet. 6-7—a factual conclusion that is not subject to review by this Court.[4]

In addition, respondent argues that no issue concerning the use of subjective inventor testimony is presented in this case because the Federal Circuit merely considered the inventor's testimony "in the context of his being an expert in the field." Opp. 21. This assertion simply is untenable in light of the record in this case and in no way limits the harm in allowing inventor testimony to be used to interpret the relevant claims. Virtually any inventor could qualify as an "expert." Moreover, the Federal Circuit concluded that the testimony of the parties' technical experts was "sharply in conflict," and thus did not establish a dispositive meaning of the disputed patent terms. Pet. App. 6a. Only after reviewing all of the objective evidence, which the court found to be inconclusive, did it turn to the inventor's testimony. This testimony did not merely address the accepted meaning of technical terms in the field of the invention, but rather *the inventor's* subjective understanding of what the terms in the patent "meant." *Id.* at 7a.[5] Moreover, the court

[4] In a rather perplexing passage, respondent attempts to rehabilitate the view of the Federal Circuit that under petitioners' interpretation of the patent, the resin listed in the patent as the "preferred embodiment" for the invention would be excluded from coverage. Opp. 23. Petitioners demonstrated, Pet. 12-13 n.6, that this erroneous view is based on testing that should have been irrelevant to the claim interpretation process because it was performed years after the claim had been drafted. In any event, the inventor conceded at trial that the preferred resin was within the patent language, which specifies that the resin may not change more than *about* 50% of its dimension, *even under petitioners' tests*. Respondent's attempt to dismiss the inventor's concession as "not remarkable," Opp. 23, is wholly unpersuasive because that testimony completely undermines any basis in the record for the Federal Circuit's view.

[5] The Federal Circuit also relied on the following exchange from the inventor's cross-examination:

[Footnote continued]

cited with approval a decision crediting a "particular inventor's declaration as to claim meaning." *Id.* at 8a (citing *Palumbo* v. *Don-Joy Co.*, 762 F.2d 969, 976 (Fed. Cir. 1985), *overruled on other grounds, Markman*, 52 F.3d at 979). Thus, the Federal Circuit expressly relied on the inventor's intent in drafting the patent at issue, rather than any general knowledge as an expert in the field of the invention. Accordingly, the issue relating to the use of subjective inventor testimony raised in the petition is squarely presented in this case.

Respondent also repeats the Federal Circuit's bland assertion that it merely treated the inventor's testimony as "cumulative" to the other evidence. Opp. 14. Respondent's effort to hide behind this statement cannot conceal that the court's comment is utterly belied by the fact that it found all of the other objective evidence to be inconclusive. See Pet. 11-12 n.5. This Court is fond of noting that it reviews judgments, not opinions, and here it is clear that the only rule of law that supports the judgment of affirmance is one that depends upon the subjective intent of the inventor concerning the pivotal language in the patent claim. Thus, the inventor testimony clearly was dispositive in this case and the Court should review the propriety of the Federal Circuit's use of that evidence in construing the patent claim.

3. Finally, respondent argues that this Court has no reason to address the second question presented in the petition concerning the doctrine of equivalents because the finding of literal infringement is sufficient to uphold the judgment. Opp. 24-26. Respondent wholly fails to

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[5] [Continued]

> Q: When did you first form a view that dimension means something other than volume dimension, dimension in this definition of stable?
>
> A: I have never thought of volume as being a dimension.

Id. at 8a.

address, however, petitioners' analysis of the possible impact of *Hilton Davis* on the issues presented in the petition. Pet. 19-21.[6]

As demonstrated in the petition, the prudent course of action at this time is for the Court to hold the petition until after *Hilton Davis* is decided. At a minimum, the Court's analysis in *Hilton Davis* concerning the proper role of notice in patent law significantly will affect the proper disposition of the first question presented in the petition, which bears on whether the judgment of infringement is sustainable under a theory of literal infringement. Moreover, the *Hilton Davis* decision directly will affect the proper disposition of the second question presented in the petition, which addresses whether the verdict is sustainable under a theory of infringement under the doctrine of equivalents. If this Court in *Hilton Davis* abolishes the doctrine of equivalents, narrows the doctrine, or deems it to be an equitable remedy to be decided by the court, then the doctrine cannot serve as a valid legal basis for upholding the jury verdict of infringement in this case. Given the realistic likelihood of each of these possible outcomes, it simply makes no sense to act on this petition before *Hilton Davis* is decided. In sum, the *Hilton Davis* decision will almost certainly bear on whether either of the Federal Circuit's theories for upholding the jury verdict of infringement in this case is sustainable.

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[6] Respondent does not dispute petitioners' argument that the Federal Circuit erred in concluding that petitioners waived the equivalents issue by filing a motion for directed verdict of noninfringement that did not specifically identify the equivalents issue. Petitioners demonstrated that the Federal Circuit has held in previous decisions that a motion for directed verdict of noninfringement necessarily encompasses both literal infringement and infringement under the doctrine of equivalents. Pet. 19-20 n.8. Recently, the Federal Circuit unequivocally reaffirmed that principle in *Texas Instruments Incorporated* v. *Cypress Semiconductor Corporation et al.*, 1996 U.S. App. LEXIS 18143, at *21 n.6 (Fed. Cir. July 19, 1996).

Therefore, the proper disposition of this petition will be enhanced significantly if the Court's decision is informed by the teachings of *Hilton Davis*. Once *Hilton Davis* is decided, the Court can decide whether to grant the petition, or to remand to the Federal Circuit in light of that decision.

CONCLUSION

For the foregoing reasons, and for the reasons stated in the petition, the Petition for Writ of Certiorari should be held pending the disposition of *Hilton Davis*, or alternatively, the Court should grant the petition.

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SUPPLEMENTAL BRIEF OF PETITIONERS

Pursuant to Rule 15.8 of the Rules of this Court, petitioners respectfully submit this supplemental brief to bring to the Court's attention a new decision of the United States Court of Appeals for the Federal Circuit, *Vitronics Corp.* v. *Conceptronic, Inc.*, 90 F.3d 1576 (July 25, 1996), that was issued after all briefing with respect to the petition for certiorari had been completed.

In *Vitronics*, a panel of the Federal Circuit reversed a trial court judgment of non-infringement of a patent on the ground that the trial court had improperly relied on expert testimony and other extrinsic evidence in interpreing a disputed term in the patent claims. The court held that such reliance was improper because the patent documents, including the language of the claims themselves and the patent specification, were clear and unambiguous as to the meaning of the disputed term. Because the docu-

ments themselves provided a clear answer, the court held that consideration of extrinsic evidence was unnecessary and, indeed, inappropriate.

The court explained that in interpreting a patent claim, courts "should look first to the intrinsic evidence of record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution history." *Id.* at 1582. Only if this evidence is ambiguous may courts rely on extrinsic evidence, *i.e.*, "evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles." *Id.* at 1584. The patent documents and prosecution history should be examined first because they "constitute the public record of the patentee's claim, a record on which the public is entitled to rely" in designing around the claimed invention. *Id.* at 1583. If the public record of the patentee's claim is unambiguous, reliance on extrinsic evidence is " 'unfair to competitors who must be able to rely on the patent documents themselves, without consideration of expert opinion that then does not even exist, in ascertaining the scope of a patentee's right to exclude.' " *Id.* at 1584 (quoting *Southwall Tech., Inc.* v. *Cardinal IG Co.*, 54 F.3d 1570, 1578 (Fed. Cir. 1995)). Finally, the court noted that "the inventor's subjective intent as to claim scope, when unexpressed in the patent documents, [should not] have any effect." *Id.* at 1584.

The petition in this case presents the question whether a court interpreting a patent claim may rely on extrinsic evidence, such as self-serving inventors' testimony, that was not available to members of the public attempting in good faith to construe the patent. The petition argues that this Court should address that issue because different panels of the Federal Circuit, which has exclusive appellate jurisdiction over all patent infringement cases nationwide, have taken different approaches to that issue and have reached inconsistent results.

The decision in the *Vitronics* case demonstrates the continuing lack of uniformity within the Federal Circuit

concerning the treatment of extrinsic evidence such as inventor testimony. The panel that decided *Vitronics* recognized that reliance on the inventor's subjective testimony in an infringement suit is fundamentally unfair because that information was not part of the public patent file available to competitors who sought to design around the patent. By contrast, the panel of the Federal Circuit that decided petitioners' appeal gave dispositive weight to the self-serving testimony of the inventor in construing respondent's patent, even though that information was unavailable to petitioners when they attempted to construe the patent in good faith based on the public documents. As a result, petitioners' panel construed the disputed patent term in respondent's favor and required petitioners to pay substantial royalties. Such disparate results within the Federal Circuit are intolerable and, as *Vitronics* illustrates, will recur until this Court grants review and finally decides what relevance an inventor's subjective intent has in the claim interpretation process.

For the foregoing reasons, and for the reasons set forth in the petition and reply, the petition for a writ of certiorari should be granted, or alternatively, should be held pending this Court's disposition of the *Hilton Davis* case.

Respectfully submitted,

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No. 95-2033

IN THE
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OCTOBER TERM, 1996

BP CHEMICALS LIMITED and
STERLING CHEMICALS, INC.,
Petitioners,

v.

HOECHST CELANESE CORPORATION,
Respondent.

On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

BRIEF IN OPPOSITION TO THE SUPPLEMENTAL BRIEF OF PETITIONERS

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BRIEF IN OPPOSITION TO THE SUPPLEMENTAL BRIEF OF PETITIONERS

Respondent Hoechst Celanese Corporation ("Celanese") respectfully submits this brief in opposition to the supplemental brief filed on September 18, 1996 by BP Chemicals Limited and Sterling Chemicals, Inc. (collectively "petitioners"), which uses the Federal Circuit's recent decision in *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576 (Fed. Cir. July 25, 1996), as a basis for rehashing the same litigation-inspired linguistic arguments already rejected by the Federal Circuit, the district court, and the jury. As shown herein, there is no "lack of uni-

formity" or "disparity" between the Federal Circuit's decisions in this case and in *Vitronics*, so the latter provides no basis for altering the Federal Circuit's result in this case.

From the outset of this case, petitioners have tried to manufacture an ambiguity over the term "dimension" in the '806 patent specification as an artificial means to excuse their willful infringement. That effort has been properly rejected three times already. As held by the jury, the district court, and the Federal Circuit in this case, the term "dry physical dimension" refers to a linear measurement, not a volume. Under its ordinary meaning, "dimension" is a one-dimensional length, not a three-dimensional volume. *See* Brief in Opposition, at 20-24. Contrary to the petitioners' assertions, that definition is not a unique, secret or subjective meaning allegedly known only to the inventor.

Without doubt, the definition of "dimension" adopted as a matter of law by the Federal Circuit is its ordinary and common meaning that is consistent with the patent documents and the usage and understanding of those skilled in the art. Not surprisingly, the Federal Circuit in *Vitronics* specifically relied on its prior decision in this case for the proposition that "[a] technical term used in a patent document is interpreted as having the meaning that it would be given by persons experienced in the field of the invention unless it appears from the patent and prosecution history that the inventor used the term with a different meaning." 90 F.3d at 1582. Hence, petitioners' allegation of inconsistency between decisions of different Federal Circuit panels in that regard is baseless.

Moreover, the Federal Circuit in *Vitronics* also cited its opinion in this case for the proposition that an interpretation that excludes the inventor's preferred embodiment from the scope of the patent claims "is rarely, if ever, correct." 90 F.3d at 1583. In *Vitronics*, the Fed-

eral Circuit rejected the defendant's reliance on expert testimony that interpreted the claims so as to exclude the inventor's only disclosed embodiment. *Id.* at 1583-84. In this case, the Federal Circuit rejected petitioners' attempt to do the same thing. Brief in Opposition, at 23; Pet. App. 9a, 22a. The only difference in the cases is that the district court and jury in this case got it right the first time. Once again, petitioner's attempt to create a conflict in the two decisions is meritless.

Thus, for the reasons already stated in the Brief in Opposition and confirmed herein, the petition should be denied in its entirety.

Respectfully submitted,

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